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ORIGINAL ARTICLES.

DIET IN ITS RELATION TO THE TREATMENT AND PREVENTION OF DISEASE.

Read before the Section of Physiology and Dietetics at the Forty-third Annual meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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The study of dietetics from the earliest ages among people of different nations that have cultivated the art of medicine has often been an important subject for consideration. Thus, in the Hippocratic Treatises mention is made of diet in health as well as in disease. In the treatment of certain fractures the ancients had different grades of diet, as the full, the ordinary, and the low. The diet was sometimes restricted; food that was of a laxative character was not unfrequently employed. Abstinence from flesh and from wine was often enjoined; in such cases a more nourishing diet was gradually resumed. The aphorisms of Hippocrates embody many regulations respecting diet. A slender and restricted diet in chronic disease was regarded by Hippocrates as always dangerous. In the more acute diseases an attenuating diet was used. From the writings of the ancients it is evident that they attained to a high degree of knowledge as regards the influence which food exercises in health and in disease. Such knowledge obtained was a natural sequence of the manner of their living. As those nations advanced in the upward scale of civilization the arts multiplied, commerce extended and wealth so increased that the pleasures in living became numerous and far-reaching. The accounts of the excesses indulged in at the table even when placed in comparison with some of the more modern customs seem almost incredible. The praise which Cicero bestowed on his host for the thoughtfulness in providing him an emetic to be taken before the feast was served, has become proverbial. Luxurious tables during the ascendency of Rome were not limited to the confines of that mighty capital, but were often abundant in the more distant parts of the empire. During a recent visit to the excavations made at Pompeii and at Herculaneum I became interested, not only in many articles and utensils taken from the ruins, but also in the evidence of comforts and luxuries which wealth afforded to many of the inhabitants of those cities, which were buried by the eruption of Vesuvius. M. Monnier[1] has given a good account of one of the suppers, taken from a bill of fare found at Pompeii. This bill of fare found in the ruins was well preserved. The menu was taken from the house of Paratus, not an emperor but a citizen, who of course, indulged in only a mere modest repast.

First Course.—Sea urchins, raw oysters at discretion, pelorides or palourdes (a sort of shell fish now found on the coast of Poitou, in France). Thorny shelled oysters, larks, a hen pullet with asparagus, stewed oysters and mussels, white and black sea-tulips.

Second Course.—Spondulæ, a variety of oysters; sweet water mussels; sea nettles, becaficoes; cutlets of kid and boar's meat; chicken pie; becaficoes again, but differently prepared, with an asparagus sauce; murex and purple fish. The latter were but different kinds of shell-fish.

Third Course.—The teats of a sow *au naturel*, they were cut as soon as the animal had littered; wild boar's head (this was the main dish); sow's teats in *a ragout;* the breasts and necks of roast ducks; fricasseed wild duck; roast hare, a great delicacy; roasted Phrygian chickens; starch cream; cakes from Vicenza.

The deglutition of all these was assisted by frequent draughts of wine made in the vineyards planted on the slopes overhanging the walls of Pompeii. This wine was often of a light grade, was of fair quality and if sterilized could be kept for many years. Illness from over-indulgence or from errors in diet was not unknown to the Pompeians. From what has been discovered in the ruins at the house of the surgeon, and also in the ruins at the shop of the apothecary it becomes evident that this ancient people often sought for relief from maladies and from functional disturbances induced by disregard of those fundamental principles which, had they been observed would have led to much higher degree of health. Temperature of food which has been served is an important subject for consideration. Food when heated to a high degree may at first act as a stimulant but will nevertheless cause an undue contraction of the arterioles. This condition of the capillary circulation will cause a diminution of the flow of the fluids necessary for digestion, will lead to gastric anæmia and to the occurrence of certain forms of dyspepsia. My own professional experience, however, justifies me in making an urgent plea for regular ingestion of warm food, which not only conserves the resources of the stomach, but also overcomes the tendency to the indulgence in those stronger stimulants, the use of which so often results in physical as well as moral degradation. Dyspepsia and indigestion before the occurrence of marked organic lesion can almost invariably be cured by a rigid adherence to a regulated diet. All foods should be thoroughly masticated. Fermentable articles should in great measure be avoided. In this list may be included certain starches, sugars and sometimes fats. It is often, however, observed that many kinds of food which are seemingly ill-adapted to a

[1] "The Wonders of Pompeii," by M. Marc Monnier, p. 161.

dyspeptic may be wholly innocuous when taken singly and in moderation. Thin soups and allied articles have in my practice been the best adapted for a cure; raw oysters are often beneficial, though I believe the nutritive properties of this class of food have been overrated.

The lighter grades of meats, such as mutton, lamb, game, venison, and poultry are to be preferred to the meat furnished by the butcher. Eggs, when poached or boiled, are to be recommended. Eggs beaten or whipped up with water or with wine are not as good on account of the danger of the admixture of atmospheric air. Farinaceous articles, including stale bread, tapioca, sago, corn bread, rice, hominy, macaroni, crackers of different grades, cream and butter are also to be recommended. Certain fruits and vegetables are often required by the dyspeptic. In this list may be introduced apples, when baked, grapes, oranges, peas, spinach, asparagus, celery, lettuce, string beans, and peas, occasionally dandelions and chicory. In cases in which the patients are of a plethoric habit, cold water may be drunk half hour before each meal. In those cases in which the persons are of nervous temperament or are anæmic, water of the temperature of 110° F. to 120° F., should be taken in preference. The dyspeptic should scrupulously avoid partaking largely of articles of food that have been hardened in the preparation of cooking, or of articles that are rich or have been so highly seasoned, or have been prepared in such a manner as to render them difficult of digestion. Such articles should be avoided, not only on account of their giving rise to immediate disturbances, but also on account of their leading to an inflammatory condition of the mucous and glandular tissues, and to debility and atrophy of the structures entering into the organs essential to production of the digestive process. Closely connected with the consideration of food adapted for gastric disturbances is the consideration of food for renal affections. In the treatment of uric acid diathesis, notice must be taken relative to the habits and occupation of the patient. In a case in which the patient is habitually engaged in literary pursuits food containing some of the protein elements will often be indicated. An azotized aliment to a limited extent must be allowed. Food consisting largely of the farinaceous element will suffice for the invalid who is able to take prolonged and regular exercise, such as mountain climbing, riding on horseback, gardening and farming, and manual labor generally. Certain forms of carbo-hydrates, however, such as wine, fermented liquors, and perhaps most of the alcoholic preparations, should be excluded in a large number of cases which occur in the different kinds of renal disease. In cases of excess of urates, or in lithic diathesis, a diet abounding in alkaline salts must be employed. For in such cases there will be found in the blood insoluble uric acid the presence of which can be safely overcome only by the proper administration of food. In cases of chronic nephritis, in which the urine voided is excessive in quantity and is more or less albuminous, milk usually agrees well and should be freely taken. Water which has been sterilized should also be taken in liberal quantities. Most of the articles of diet mentioned as suitable for cases of dyspepsia will often be found beneficial in the management of the diet for this form of renal disease. In the treatment of obesity a diet composed largely of animal food has often been recommended. My own professional experience leads me to oppose such a method of procedure. In a case in which the food is limited to a meat diet there is apt to occur an excess of urea. In the case of G., aged 48 years, and whose weight was three hundred and fifteen pounds, an attempt to effect reduction of weight by diet, consisting in great measure of rare beef, roast mutton, boiled ham and stewed veal, each taken on different days, was undertaken by direction of his physician. After a year's experience on this routine course, the patient applied to me for treatment of an attack of gravel. He had begun to pass from the bladder small calculi of uric acid. Under my treatment the use of all kinds of animal food was immediately discontinued; a plain, vegetable diet with milk and gluten, eggs, fish, with some fruits, and sterilized water were prescribed. The patient gradually improved. The sediment of the urine disappeared. There were fortunately no gastric disturbances. Within one year the weight had materially diminished; the morbid craving which had been engendered for animal food was completely overcome. The patient regarded himself as in sound condition; he was able to take long walks daily without becoming fatigued.

In this connection I cannot refrain from remarking that the substitution of animal diet exclusively for a mixed diet or for one composed in great measure of the lighter fruits, vegetables, together with a small amount of eggs, milk, fish, and other articles whose waste products are easy of elimination, for persons suffering from excessive obesity is according to my experience, a most pernicious method of procedure. This leads to the consideration of diet for those who suffer habitually from the rheumatic diathesis. In the management of such cases one should not loose sight of the important relation subsisting between the ingesta and the egesta of the human organism. In many cases of troublesome rheumatic symptoms the digestive function is apparently well performed. In such cases the patient over-eats because he feels weak; not because he has not taken an adequate amount of nourishment, but because there has been a failure on the part of the eliminative organs in excreting the surplus material which has been taken into the stomach, been carried into the circulation and finally has been deposited among the tissues and organs of the body. In the treatment of this class of cases a radical change in diet has often to be made. All articles of food that have a special tendency toward the elaboration of the biliary principles and also of the urea should be wholly excluded for a long time from the diet list.

That form of renal disease occurring in the female when pregnant should always demand our greatest solicitude. The food allowed to be taken by such a patient should always be light and easy of digestion. In the treatment of this class of cases I have invariably found that all butcher's meat should be interdicted. In the case of Mrs. S., who in her first confinement had convulsions precipitated by renal complication, food composed largely of animal diet had been prescribed up to the very hour of the onset of labor. I was not called to this case until labor had begun. The convulsions were fortunately overcome; she was kept afterwards on milk and farinaceous articles to which eggs and fresh fish were frequently added. In her second pregnancy renal trouble was of the mildest type; labor was accom-

plished without the occurrence of eclampsia. During the third pregnancy she was not under my care. The directions which I had heretofore enjoined regarding the diet were not carried out; the convulsions appearing in that third labor evidently in consequence of the re-occurence of the renal complication, I was assured were the immediate cause of death. In my own practice I have notes and reports of several other cases in which renal disease brought on or hastened by pregnancy, was practically cured or overcome by the strict intervention of light but nourishing diet from which animal food of every description had been excluded.

Although our knowledge regarding the original cause of the appearance of cancer is as yet meagre still some evidence by clinical experience has been offered that this disease is not wholly uninfluenced in its origin and course by diet. My first impressions that cancerous affections would be influenced by diet were received from my late Professor, Dr. Henry I. Bowditch, who mentioned to me the case of an eminent physician. It seems that a cancerous growth appeared on the face of the physician. This led him to consult prominent surgeons in regard to the advisability of its removal. A decision against the safety of a resort to surgical measures prompted the sufferer to consider more carefully the influence the particular articles he had been accustomed to use in the diet list for his own use. His diet had always been a most generous one; he therefore began to suspect that it had exerted material influence in the causation of his disease. Suffice it to say, that the change from full diet to one that was radically different but opposite in its character, exercised a most important influence in affecting a retrograde action of the disease. Though evidence has been afforded that cancer in some of its various manifestations is contagious, it is also important to observe that its occurrence so common in the uterine tissue after the menopause and for sometime afterward indicates that the structures of that organ are favorable soils for its development. The adaptation of the uterine tissues at this particular period further indicates that these favoring conditions are dependent on accidental circumstances.

When the tissue is in a normal state the regular recurring catamenia no doubt do attenuate and finally discharge any germs that gain entrance into those parts. After the cessation of the catamenial flow, the uterine cervix or body undergoes in histological structure such important changes that the tissues become to a certain extent culture chambers in which disease germs gaining admission may develop. The proneness of these tissues to disease is more particularly enhanced when the nutritive forces determined to the genital tract are no longer expended through the agency of the menstrual molimen, but are retained and as it were stored and unemployed. These tissues for a while at least, become obnoxious to the growth of germs, bacilli, or to certain bacteria. By lessening the currents of nutritive force distributed to the tissues of the organism we modify, or starve those embraced within the area of the uterine zone, and render them less prone to the invasion of bacterial and of adventitious elements. In three cases of uterine cancer treated almost from their inception, principally, by careful management of the diet I am satisfied that the disease was practically extinguished. In a fourth case to which I was called, had I had the good fortune to commence earlier or at least had been able to carry out more regularly and systematically the management of the diet that was indicated, I feel confident a successful issue would have been accomplished or an important modification in the results of the invaded tissues would have been effected. The facts observed in the above cases are of course, too few for establishing any general conclusions, though they suggest the importance of further observation. In the treatment of phthisical cases, though oysters, eggs, fish, cream, butter and many of the milder fats are beneficial, I have nevertheless found in my own practice, that a diet composed largely of animal food is the one best adapted for staying the progress of the disease or in the earlier stages for hastening the cure. In some phthisical cases in which the digestive organs were in healthy condition I have advised the ingestion, of large quantities of beef, mutton, fish, fowl or game. In some cases I have recommended the almost daily use of venison; in this aliment I include the flesh of the cariboo. In some cases wonderful results have been accomplished. By this method of treatment in one case occurring in a man aged thirty-two years, I was able to check the disease and to do much toward effecting cicatrization of the lung tissue, even after the occurrence of repeated attacks of profuse hæmorhage and after a large cavity had formed in the superior lobe of the left lung. At the time I commenced the treatment the patient was in very feeble condition; he was expected to live only a very short time. By means of the treatment persistently carried out he survived for fifteen years. The patient died at the age of forty-six years, of double pneumonia which lasted but a few days; the fatal attack was brought on by a prolonged exposure during the season of influenza in the month of January, 1889. Autopsy revealed an extreme atrophy and contraction of the upper lobe of the left lung; much of the lung tissue of that portion had disappeared. The left bronchus was dilated; there was still the remains of a cavity into which small pockets opened. The lower portion of the left lung was fibrous and contained but few air vesicles. The cavities opening into the bronchial tube were lined by a secreting membrane. Some fluid was found in each of these cavities. The left lung had been in great measure rendered useless. The right lung was enlarged. All the lower portion was heavily congested, presenting the early stage of acute pneumonia. On the right side above there was only a limited portion which was pervious to air, This condition of the lungs during the last hours of life was the cause of the extremely rapid respiration, which varied from forty to eighty per minute. Both lungs were densely adherent. The heart was enlarged and dilated. The cardiac valves were, however, normal. The kidneys were healthy; the liver was enlarged, but otherwise healthy; the spleen was normal, so also were the intestines and stomach. The patient had from time to time expectorated large quantities of catarrhal and purulent exudation. Before the fatal attack the patient had been gradually improving. The sputa which I examined according to the method of Professor Koch, of Berlin, revealed but few characteristic bacilli tuberculosis. The otherwise good condition in which the patient had been kept by the rich and nourishing food prescribed, finally overcame essentially the influence of the bacilli, or at least prevented them in

large measure from gaining entrance into the system. In this connection I should say that the patient's condition was not left wholly to the influence of dietetic treatment; his urgent symptoms often demanded prompt administration of the most effectual remedial agents. I am confident, however, that the great success in his case would not have been achieved unless the special attention had been paid to the consideration of dietetic measures. In prescribing a diet, consisting so largely and generously of flesh, much study and consideration should be given in determining in any case the soundness, capability and endurance of those organs which are concerned in digestion and in elimination. The condition of the kidneys above all should from time to time be inquired into. The autopsy in the case here reported shows that the kidneys though heavily worked remained sound until the last.

The enlargement of the liver, which in this particular case acted as a diverticulum was rather the result of a conservative process than as a pathological one. The enlargement of the heart was by no means found to be a serious complication; it occurred doubtless in consequence of the excessive work which that organ was called upon to perform in propelling the blood through the affected pulmonary tissue; this increased action of the heart was fast accommodating itself to the new order of things. Judging from the whole history of the case from its inception until its close it is evident that the most liberal and nourishing diet which had been advised and which the patient was so well able to bear, would, had he not suffered from the accidental exposure, have resulted in a restoration to health or would have prolonged his life to many more years of usefulness and enjoyment. As it did result the patient had been enabled during the years while under my care to achieve by honorable mercantile pursuits a substantial fortune for the maintenance of his family. The dietetic treatment best adapted for phthisical cases can accurately be determined only by a careful consideration of each of the several factors present in any individual case.

In some cases milk is a most useful article of diet; sometimes it may be taken cold, and even in large quantities. Some patients, however, are unable to take milk in this way; such patients may take milk if given in small quantities when given at the temperature 100° F. or at a temperature somewhat above that point. Peptonized milk can often be taken with advantage; eggs, fish, fowl will sometimes prove to be most nourishing articles for the phthisical patient. In cases in which there is but little tendency to diarrhœa, I have found green vegetables of much service. In the treatment of phthisical cases, in which the greatest success however, is to be expected my experience proves that articles of diet largely nitrogenous in character must be ingested. In carrying out the treatment for this latter class the carbohydrates embracing oleaginous and fatty substances may to a certain extent be added; at intervals more or less remote those articles formerly classed as feculaceous in their immediate principles may not unadvantageously be employed.

A HARD STATE TO PRACTICE IN.—The Alabama State Medical Examining Board rejects 41.16 per cent. of candidates who apply for license.

EPITHELIA.

Read by Title in the Section of Physiology and Dietetics, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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These are morphological elements of mucous, synovial and serous membranes, and take their name from epi, upon, and tithemi, to place, and mean placed upon.

They are cells with protoplasmic contents. There are three kinds as to shapes: 1. Pavement. 2. Cylinder. 3. Ciliate.

Their seats are as follows:

Pavement or Tessellated Epithelia.—Besides the above named seats they are found upon the skin, hair follicles, nails and toe matrices, on the membranes of the aqueous protoplasmic humor, the choroid, the capsule of the lens, the retina, the conjunctiva of the ball of the eye, the cavity of the tympanum, the lower half of the pharynx, the œsophagus, the endocardium, some veins, the capillaries, all glands and ducts. the vagina and female urethra, the bladder, uterus, kidneys, pelvis and tubules.

In the arteries and many veins they are spindle-shaped.

Cylinder Epithelia.—In mucous membranes, in Lieberkuhn's follicles, all the ducts of the glands of the alimentary canal, in the lachrymal and the mammary glands, the male urethra, the vas deferens, the vesicular seminales, the prostatic ducts, the Cowper's and uterine glands.

Ciliated Epithelia Seats.—The larynx, trachea, bronchi, nares, pharynx above the level of the base of the nasal bones, the antra, the frontal sinuses, the inner surface of the membrana tympani, the Eustachian tubes, the uterus, the Fallopian tubes, the lachrymal sacs, nasal duct, palpebral conjunctiva—or that which is on the under surface of the eyelids and ependyma (Micrographic Dictionary). This list is complete enough for our purpose. Never does a human being wash hands or body, defecate, urinate, vomit, expectorate, sweat, bleed, conjugate or rub the body surface, unless there is a separation of multitudes of epithelia from that body. Hence we may infer that epithelia have a prodigious part to play in the physiology of the human body.

Shapes.—These have been indicated already, but besides the pavement, cylinder and ciliated cells, there are the caudate, spindle-shaped, hexagonal, oblong, lozenge-shaped. The situation varies the shape. For example, in the liver they are found hexagonal.

Contents.—Independent of their products, clear and structureless protoplasm, that first plastic material which is the basis of all the organized tissues and products in the human body. Protoplasm is a field on the confines between man and God the Creator. Man cannot tell why one cell secretes bile, another milk, another wax, another fat, another pigmentine, any more than he can tell why gold is yellow or silver white, or air is blue.

Those who believe in God explain these differences of protoplasm, metals or air, by referring them to the will of God. Those who say they are so by nature mean the same thing, as the word "nature" implies something born from "God" as a source of birth. Those evolutionists who deny God, I believe, have not explained the reason why epithelial proto-

plasm is so varied in its production according to the needs of the body and being evoluted by those needs. Needs do not always develop the means of supplying these needs, as taught by evolutionists. If so, there would be no protested notes, no one would starve for want of food, nor drown for want of air; no babies would die for want of good breast-milk, the product of epithelial protoplasm.

Autonomy.—Epithelia have an independent existence over the other tissues of the body. They will take up some substances and refuse to take up others, thus showing the power of election. To be sure this is seen in inorganic substances, as in chemistry. They exist after death of the body, or after separation from the body. Ciliated epithelia will long wave after death of the body systemic.

Surgery has taken advantage of this autonomy by the process of skin grafting, whereby skin epithelia are clipped from the sensitive body, causing hard pain and sacrifice. The method of skin grafting originated by Dr. C. B. Kibler, of Corry, Pa., shows still more prominently the autonomy and stability of dermal epithelia. He scrapes off the epithelia from the palmar surfaces of hands and feet and from callouses, keeps them dry an indefinite time ready for use, and finds that they are as good as the epithelia from sensitive skin; their vitality is like that of teeth. It is hoped that there will be no more useless martyrdom in skin grafting after this.

Those who study the morphology of potable waters know how abundant epithelia are. While they are not all human, some of them must be, and their vitality must be great to stand the continued soaking they get and to resist decomposition.

Another evidence of epithelia autonomy is in the secretions. We have alluded to the bile and milk epithelia. Besides these are wax, fat in its varied forms, sweat, mucus, urinary liquids, salts, pancreatic, gastric and intestinal juices, to name no more, and these are originated by the epithelia from the blood; and to repeat, man knows no more how these secretions are made than he knows the process of decomposing carbon dioxide gas, the evolution of oxygen, the appropriation of carbon, the production of resin, balsam and oils, going on in the leaves of the trees right under his eyes and over his head. Some time man may know the secret, but it will be some time yet. But for these different products of epithelia, life could not go on.

The mechanical functions of ciliated epithelia show autonomy also by removing secretions from their sites, because the power is applied towards the outlet. Otherwise, for example, the lungs would be clogged; this would happen if the epithelia forced the secretions towards the terminal tubes and air cells, and death would result. Dr. B. W. Richardson, of London, gives in the *Asclepiad* a graphic account of "Default of ciliary action" in the air cells, or rather air passages, especially during fogs moist and dry. He says ciliary action runs with age; most active in youth, good in middle age, and probably ceases altogether in very old age. The morphology of the air is well collected by the ciliated epithelia of the air passages, and is included in the morphology of the sputum. Those who live in cities are little aware of the immense amount of material there is in the atmosphere coming even from meteoric bodies, volcanoes and coal dust, and frequently from other worlds.

The ciliated epithelia of the nares are very useful to clear the respired air of these passing bodies. Now the motion of the cilia is something marvellous; it is protoplasmic. Muscular motion is protoplasmic, as the automobile motion of the bodies of the bacteria of fermentation or of monads which act on diatoms, for example, as tugs do on ships. As we refer the motion of bodies celestial and terrestrial to the power of the Creator, so must we see in the said motion of cilia towards the outlet of their cavities only another evidence of His marvellous work. Certainly ciliary motions are those of vital energy. It has been said by another that epithelia grow by feeding, organize their food into new epithelia and secretions, throw off fæcal matter, and that their work is independent, like an individual organism. Another has also broadened this idea, that the intense disturbance that comes in disease to epithelial cells is a cause of rise in temperature, *i. e.*, fever. I think there is great truth in this view. Certainly epithelia have a tremendous work to do to cast out offensive or noxious substances, and if they are automatic, is it unreasonable to suppose that they get excited and hot in those efforts, just as one would in trying to expel an intruder from home at night who does not want to go until he has done his mischief and stolen his prey.

Effect of Nerve Forces on Secretions.—The effects of the nerves on epithelia are wonderful. Some mothers think that their breast milk is formed while they are suckling. If this is so, the epithelial activity must be something marvellous.

Tulchen.—The Dutch kill a calf and stuff its skin so as to resemble the live animal. This is called a "tulchen," and is placed while the mother is milked just so that she can see it in a position of suckling; the result is that she lets down her milk and a larger quantity is obtained than otherwise would be. Maternal affection thus influences the production of milk and hence influences the work of the protoplasm of the epithelial cells. In India this tulchening has been done for ages, as a late authority states.

A Cow's Jealousy.—Mr. C. H. Brown, in *The London Spectator*: "A few years ago I had a quiet milch-cow, 'Rose,' which certainly was fond of Thomas, the man who milked her regularly, and she also showed an aversion to dogs even greater than is usual in her species. One night, for what reason I now forget, I had tied up a young collie dog in the cow-shed where she was accustomed to be milked. The following morning I had just begun to dress when I heard the puppy barking in the cow-shed. 'Oh,' thought I, 'I forgot to tell Thomas about the puppy, and now the cow will get in first and gore it.'

"The next minute I heard a roar. I dashed down to the spot, and at the same moment arrived my son, pitchfork in hand. There lay Thomas on his face in a dry gutter by the side of the cow-shed, and the cow butting angrily at him. We drove off the cow and poor Thomas scuffled across the road, slipped through a wire fence, stood up and drew breath. 'Why Thomas,' said I, 'what is the matter with Rose?' 'Well, sir,' said Thomas, 'I heard the pup bark and untied him, and I was coming out of the cow-house with the pup in my arms when Rose came around the corner. As soon as she see'd the pup in my arms she rushed at me without more ado, knocked me down and would have killed me if you hadn't come up.' Thomas had indeed had a narrow escape

his trousers were ripped up from end to end, and red marks all around his legs showed where Rose's horns had grazed along them. 'Well,' said I, 'you had better not milk her this morning, since she is in such a fury.' 'Oh! I will milk her right enough, sir, by-and-by; just give her a chance to settle down like. It is only jealousy of that ere pup, sir. She could not abide seeing me a-fondling it.'

"Well, as you like,' said I, 'only take care and mind what you are about.' 'All right, sir.' In about twenty minutes Thomas called me down to see the milk. The cow had stood quiet enough to be milked. But the milk was deeply tinged with blood, and in half an hour a copious red precipitate had settled to the bottom of the pail. Till then I doubted the jealousy theory. After that I believed."

As there is no Section of Pathological Anatomy in this Association, it may not be out of place to briefly say that dermal epithelia are invaded by vinegar yeast in consumption. Specially they are invaded in small-pox, measles, scarlet fever, diphtheria, etc.

Epithelia degenerate into fat in Bright's disease of the kidneys.

As said by another, they may also be paralyzed or made drunk, as it were, by carbon dioxide gases, so that they do not distingush as in the natural state, and they take in noxious substances which are transmitted into the lungs, for example in consumption. First there is consumption of the bowels, and next follows consumption of the lungs. In cases where the epithelia refuse the passage of the mycoderma aceti or vinegar yeast, the case remains consumption of the bowels. This is the most clear explanation I know, of consumption of the bowels.

Epithelia are extensively thrown off in Asiatic cholera, as I early observed, in all stages of formation, and perhaps this explains the great prostration in those cases.

Deformed Epithelia.—There is no doubt that epithelia are deformed, and that very little notice of this feature has been made. But there is a relation of deformed ciliated epithelia to grippe which is an important one, for it is widespread over the globe, and for its severity specially in complicating other diseases, as lung fever, bronchitis, pleurisy, etc. To be sure some take the view that the forms called by the great majority of physicians deformed ciliated epithelia are not epithelia at all, but are cilio flagellated infusoria which infest the air passages in grippe, and make under the microscope one of the most beautiful and wonderful displays of protoplasmic life to be seen.

So long as man is infected by animal parasites, as tænia, scabies, guinea worms, ticks, lice, microbes, etc., it is nothing strange to have them infected by an infusorium which is communicated through the air from man to man. But concede this to be only deformed ciliate epithelia, then the following things must be explained:

1. Why is it that when grippe patients are found with thirty to forty living and moving forms, which my critics call deformed ciliated epithelia, in the excretions of the air passages, they suffer so much from nasal, pharyngeal and laryngeal irritation, coughing, sneezing and expectorating freely, with flushed countenances looking like lung fever, and yet when the fumes of burning sulphur, nascent chloride of ammonium or atomized benzoate of soda are inhaled, great relief is afforded in a few moments? Then why, on examining the excretions, are the forms found dead and motionless?

2. Are we then to infer that deformed ciliated epithelia alone are sources of irritation alive, but dead they are not sources of irritation? If so, then there is a new law that dead tissues do not irritate, but live ones do, contrary to common sense.

3. If I find a man sick with incessant coughing, which has resisted all medication; if the expectoration shows what my critics call deformed ciliate epithelia protoplasm in action; if I present burning sulphur and if I find the cases cured thereby, am I to infer in these cases also that live tissues irritate, and when dead do not?

4. I have stated that I did not know that ciliated epithelia were found in the ocular conjunctiva; but they have been found in the palpebral or eyelid conjunctivæ. Still I think it is possible that all the forms found were not ciliated epithelia, after making this allowance.

Stomata.—These stomata were beautifully shown in the microphotos of the late Surgeon Woodward, U. S. A. These are openings between the endothelia of capillaries and veins. In inflammation they open and allow the migration of white corpuscles, which have a habit of breaking up into two, three, four, five or six parts and then reuniting. When escaped outside the blood-vessels they coagulate in a collection, forming what we call abscesses.

The stomata must play an important part in inflammation by affording egress to the white corpuscles, though in health it is thought doubtful if there is any such egress. In this the animal differs from the vegetable stomata, as found in leaves, which afford ingress for carbonic acid gases from animals, and egress to the oxygen into the atmosphere to us.

Hair and Nails.—The epithelia of the skin take curious modifications in the production of hair and nails. The vitality of hair is wonderful and lasts after death for a long while. I once saw a man place the hair of his daughter's head, who had been buried for ten years and was exhumed for a new cemetery lot. on the top of a common flour barrel and it reached to the floor. I was told that in her last sickness her hair had been cut short. This positive instance, it seems to me, settles the question of hair growing after death, in this case at least. After this I was prepared to believe that the horses and men who had been killed in battle, buried in a trench and exhumed by an earthquake in Chili, had had the hair grow after death.

The fact that hair varies in the sexes shows a wonderful control of epithelial power on the part of our Creator. So the nails are constantly being reproduced by the epithelia of the matrices at the root of the nails, and all the time under our eyes forming compact, dense, transparent-like bodies much like the cornea, for a useful purpose just when they are needed. They are one of the best tests of the nutrition of the body. If thin, ridged with longitudinal furrows or with deep transverse furrows, you may be sure that something has interfered with the body nutrition, or you may be dealing with a case of syphilis acquired or inherited.

When the free ends of the nails are bent downward or clubbed you are to look for some obstruction to the circulation in the chest. A round, smooth, naturally symmetrical set of nails shows good nutrition. I am not quite sure but those who profess to

read character by the inspection of hands include the nails in their physical explorations.

Spermatozoa.—Kolliker teaches that spermatozoa are produced in epithelial cells. If so, this caps the climax of physiological use of an epithelial cell.

The spermatozoa furnish the most lively example of protoplasmic motion in the human body. A microscope slide filled with live spermatozoa is one of the most wonderful sights on earth. The motions are so active, positive and automatic. When it is considered that one spermatozoon will impregnate an ovum—that you and I each of us came into being through such a spermatozoon—that constitution and traits of character mental, physical, intellectual, moral, are seen to be transmitted from one father to a son, or it may be from a grandfather or great-grandfather—it must be confessed that it surpasses our ability to comprehend how that so small a body as a human spermatozoon could transmit such features of distinction, so unmistakably. And then to think this comes through the medium of epithelial cells!

It seems to me that our subject furnishes material of interesting and profitable thought, and that the section of physiology offers a field which should be better cultivated than now. Far more profitable is it for us to be engaged in cultivating our mental powers, in sharpening our wits as physicians by making physiological subjects the objects of thought, rather than those of medical police and ethics.

I think it is noble and grand to realize how we live and move and have our being in our Creator, especially in the motions of ciliated epithelial cells, of spermatozoa and in the production of milk, bile, wax, sweat, fat, tears, urine, mucus, feces, and in which the epithelia play such an independent part

New York, May 30, 1892.

THE MEDICAL TREATMENT OF ACUTE TONSILLITIS AND PHARYNGITIS: A COMPARATIVE STUDY BASED ON ONE HUNDRED AND SIXTY-NINE CASES.

Read in the Section of Laryngology and Otology, at the Forty-third Annual Meeting of the American Medical Association, held at Detroit, Mich., June, 1892.

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The modern revival of therapeutics has been attended by the introduction of new remedies almost without number. It is a fair question to ask, how much have the latter benefited us? Are the new better than the old? We shall be gratified if we find that the new-comers, especially the synthetic compounds, have enabled us to cure more quickly, more safely and more agreeably than their predecessors.

It is to help answer one phase of this question that the present paper has been planned. Herewith are presented the results of treatment in one hundred and sixty-nine cases of acute tonsillitis and pharyngitis according to three distinct methods, or rather with three distinct drugs, together with some deductions which may rightly be drawn from this number of cases.

Under the title of "pharyngitis" reference is here made only to the various aspects of the catarrhal inflammations. Under "tonsillitis" are included the lacunar and parenchymatous forms of the disease, also peri-amygdalar cellulitis or quinsy. To the etiology, symptoms and possibly infectious properties of these different affections, no allusion is here made. The question is merely one of treatment.

Unfortunately, the most important factor in any therapeutic question is the most variable, viz.: the individual constitution. This renders it difficult to adopt any standard by which to judge of results attained in the employment of any remedial measure. The physician above all other men must bear witness to the truth of the old proverb that what is one man's food is another man's poison. An approximation will, however, serve us reasonably well. The most painful symptom of the maladies named is the discomfort, almost agonizing at times, in swallowing. Even here our estimate must be relative rather than absolute, for one man will be prostrated with an amount of pain which to his neighbor is a mere annoyance. The extremes may be used to balance each other. When our patients are able to swallow again with ease, the battle is in their view already fought and the victory won. It is therefore with reference to the removal of this symptom that the results hereinafter named are to be studied.

No one realizes more than the writer our tendency to generalize from insufficient data. He has therefore waited till the number of cases should become sufficiently large, and considerable confidence is felt in the results here given. Over-sanguine anticipation frequently prejudices us in favor of a new remedy. Figures must have some size, therefore, to be considered as perfectly trustworthy.

Again, the doctrine of the self-limitation of most of the acute catarrhs must be reckoned with. If the curve of our alleged "cure" coincides with that of the subsidence of the disease, the most we can say is that we have made our patients' sufferings more bearable. We have not shortened their duration. Many of the cases of the nature alluded to complete their evolution in three days. In those peri-amygdalar cases going on to suppuration we rarely find pus before the fourth day. Undoubtedly any plan of treatment may frequently (not always) prevent a mild case from assuming a more severe form.

Concerning the method by which medicines cure those affections now considered we know but little. We know that various dyscrasiæ, the rheumatic, gouty, etc., stand in a causative relation to throat troubles, and that our approved remedies for these dyscrasiæ will relieve the local pathological state. Salicylate of soda will relieve a rheumatic angina as quickly as a rheumatic joint. So also will guaiac and salol. But it is manifestly true that many throat cases can in no wise be regarded as dyscrasic.

The material here studied has been drawn from private practice, from my own clinic at Demilt Dispensary, and from the out-patient department of the Roosevelt Hospital in the service of Dr. Jonathan Wright, whose courtesy I would here acknowledge. It comprises, as has been said, the records of one hundred and sixty-nine cases. I have probably seen as many more during the period covered by these cases (August, 1891, to May, 1892), but many of the latter did not return for a second treatment. The number recorded have been followed till cured, and in each instance I have heard from their own lips how many hours elapsed after treatment was begun before they felt relief.

It is evident that the cases must be grouped according to the time in the period of their evolution at which they were first observed. If we begin our remedial measures on the fourth or fifth day of a simple angina, the next day or the second day after are likely to witness an improvement, because now the malady is on the decline. Accordingly it makes a great difference how early in the disease we attack the pathogenic factor. Pursuant to this view, the cases with each remedy have been divided into three groups as follows:

1. Cases in which the remedy was begun on the first or second day of the disease.

2. Cases in which the remedy was begun on the third day of the disease.

3. Cases in which the remedy was begun after the third day of the disease.

The first remedy employed was salol. The literature of this drug has become very voluminous, there being now over one hundred articles extant in different languages. To the larger number of these I have had access, but only a very few of them bear upon the present question.

It is well known that salol is decomposed by an alkali into its two component parts, salicylic and carbolic acids. Sahle[1] asserts that this decomposition can be brought about by so weak an alkali as the saliva; also by dead organic matter and bacteria. Practically we find that the remedy passes through the stomach unchanged and is split up by the pancreatic juice. This negatives the idea of any local action on the throat tissues by contact. It also suggests the advisability of flushing out the duodenum previous to the exhibition of the remedy. In the various conditions of the duodenum, Lombard[2] finds an explanation of the varying results obtained with salol. Lepine[3] has found that by diverting the pancreatic flow in animals (while salol was being given) from the bowels, the remedy was found unchanged in the stools, nor did the urine give the reaction for either of its components. On restoring the normal flow, the reaction promptly appeared. Regarding its therapy he states (Ibid.) that as compared with salicylic acid and its salts in rheumatic affections, it simply relieves the pain while the sodium salicylate attacks the disease.

Herrlich[4] used the remedy in one case of diphtheria resulting fatally. The mode of administration is not given.

Gougenheim[5] gives a warm commendation to the drug in throat disease, having employed it in twenty-two cases. His conclusions are:

1. It acts beneficially in all forms of angina, whatever the cause.

2. It quiets pain and dysphagia with the greatest rapidity.

3. In quieting pain it may shorten the duration of a quinsy.

4. It lowers the temperature.

5. In nearly all cases it diminishes the duration of the angina.

6. To accomplish the results at least 60 grains must be taken in twenty-four hours.

Seifert[6] regards it as an effective mouth wash in ulcerative processes and in diphtheria. He used a dram of a 6 per cent. alcoholic solution to a glass of warm water for a gargle.

Georgi[7] considers that it has more effect than chlorate of potash in catarrhal and lacunar anginas.

Thorner[8] was perhaps the first in this country to use the remedy for throat disease. He gave from 10 to 15 grains three times a day, and found that patients were able to swallow with ease, sometimes after only two doses. In one case beginning as parenchymatous tonsillitis, pus had already formed in the periamygdalar cellular tissue. Fifteen grains of salol (incision having been refused) enabled the patient to sleep by aborting the pain. The next day the abscess opened spontaneously. Thorner does not regard the 6 per cent. solution of Seifert as having any special advantage over other antiseptics in faucial and pharyngeal ulcerations.

Katzenbach[9] regards it almost as a specific, but gives no details concerning its administration or the nature of the cases to which he considers it applicable.

Wessinger[10] has given the remedy in 5-grain doses every two hours. In one case of pharyngitis the soreness was relieved in twenty-four hours, in another in twenty-two hours, etc. Wessinger considers salol as a heat dissipator through vaso-dilatation and consequent diminished pyrexia.

Wright[11] gives an exhaustive history of the remedy and by far the most definite account of its action in throat disease. His tabulations show that in a series of fifty cases of simple tonsillitis and pharyngitis, where treatment was begun on or before the second day (twenty-one cases) relief was experienced on an average in seventeen hours; begun on the third day, fourteen cases in twenty-seven hours. After the third day, fifteen cases in twenty-four hours. In some instances complete failure is recorded. His conclusions are in accord with those of Gougenheim. The lacunar form seemed to yield most promptly. A careful study of Wright's figures is instructive on this point, that any remedy begun early has a chance of aborting the disease. If not begun till the latter is under full headway, its opportunities of doing good are much restricted.

Kenner[12] regards it possible to cut short with salol every attack if begun early enough. We do not believe this claim to be substantiated. He has given 90 grains daily without any bad result. His dosage was 10 grains every three hours. Iron chloride tincture has also been given.

Regarding its mode of action, Waugh[13] suggests that it may rival antipyrin as an anodyne. The general impression has been, however, that its effects were entirely due to its salicylic component, 66⅔ per cent. according to Tait.[14] Here again we are confronted by the question as to whether it is more powerful than its equivalent of the acid, and as to whether this increment of power, granted that such exists, is more than could be accounted for by its association with its phenol partner. Bartholow, in his Treatise on Materia Medica, has noted that the effects of salicylic acid are increased in all directions by its association with the phenol group. These

1 Correspond. für Schwitz. Aertz., Nos. 12, 13, 1886.
2 Phil. Times and Register, September 28, 1889.
3 Jour. des Con. Med. Pract. Paris, p. 218, 1886.
4 Deut. Med. Wochschr., No. 19, 1887.
5 Annal. des Mal. de l'oreille, etc., No. 9, 1889.
6 Int. Centralbl. f. Lar., Vol. iv, p. 114.
7 Berl. Klin. Wochschr., No, 24, 1887.
8 Cincinnati Lancet-Clinic, December 10, 1887.
9 N. Y. Med. Jour., July 28, 1888 (Trans, New York Chir. Soc.).
10 Med. Register, 1888, Vol. iii, p, 205.
11 Amer. Jour. Med. Sci., August, 1890.
12 New Albany Med. Herald, March, 1892.
13 Phil. Med. Times, Vol. xix, p. 442.
14 Pharm. Record, March 15, 1887.

and similar considerations are all suggestive, but we have to be guided in clinical work more by results than by *a priori* views.

Lombard,[15] in a careful study of salol, says that it lowers temperature and increases the rate of breathing while there is only a slight diminution in cardiac force, but none of these more subtile effects show any relation to its behavior in throat disease.

Personally I have used salol in eighty-one cases. The dose has been 5 grains every two hours in mucilaginous suspension. Capsules have been very unsatisfactory.

The cases in which the remedy has been begun on the first or second day of the disease number thirty-six, as seen in the following table:

TABLE I.—SALOL BEGUN ON THE FIRST OR SECOND DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours Before Relief.	Remarks.
1	M	38	Yes	. . .	Lacunar .	1	4	
2	F	22	Fam.	No	" .	2	48	
3	M	35	. . .	. . .	Peritonsilitis . . .	1	No relief	Later, abscess burst, giving speedy relief.
4	F	6 m.	No	No	Lacunar .	2	48	
5	F	27	"	"	Parenchy..	2	20	
6	F	30	Yes	. . .	" . .	1	6	
7	F	27	"	No	" . .	2	12	Fresh attack four days later; relief in forty-eight hours.
8	M	39	No	"	Lacunar .	2	12	
9	F	45	"	"	Parenchy..	1	28	
10	F	28	Yes	Yes	" . .	1	No relief	Subject to bilious attacks. Throat relieved by a "bilous pill."
11	M	19	No	No	" . .	1	No relief	Scarlatina developed.
12	M	4	"	Yes	" . .	1	10	
13	F	11	"	"	" . .	2	16	
14	M	7	Fam.	No	" . .	2	6	
15	F	19	No	"	" . .	1	6	
16	M	21	"	"	Lacunar .	1	14	
17	M	26	"	Yes	" . .	2	36	
18	M	17	"	"	Acute Pharyngi's	2	8	
19	M	46	"	"	Parenchy..	2	6	
20	F	32	"	"	Acute Pharyngi's	2	8	
21	F	19	"	"	Peritons .	2	6	Incision; no pus.
22	F	25	"	No	Sub-acute Pharyngi's	2	No relief	Iron and potash internally, and gargled; relieved in 12 hours.
23	F	29	"	"	Lacunar .	2	36	
24	M	13	"	Yes	" . .	2	48	
25	F	22	Fam.	"	Parenchy..	2	10	
26	M	16	No	No	" . .	1	12	
27	F	27	"	Yes	Lacunar .	1	12	
28	F	3	"	No	" . .	1	36	
29	F	17	"	Yes	Parenchy..	1	No relief	
30	F	25	"	No	Lacunar .	2	6	
31	F	12	"	"	Parenchy..	2	8	
32	F	16	"	Yes	Lacunar .	1	12	
33	F	25	"	No	" . .	2	6	
34	F	12	"	"	Parenchy..	2	8	
35	F	3	"	"	Lacunar .	2	36	
36	F	17	"	Yes	Parenchy..	1	No relief	

Average number of hours before relief, 12.

Six cases experienced no relief. The first was a periamygdalitis in which pus was probably present. It was spontaneously evacuated later, giving speedy relief by its exit. In the second the patient, a young lady aged 28 years, was subject to bilious attacks, and said that a "bilious pill" always relieved her sore throat quicker than anything else. In the third, the angina turned out to be the forerunner of a scarlatina. In the fourth a change of treatment to iron and potassic chlorate gave speedy relief. In the fifth and sixth cases, dead failure resulted with no mitigating circumstances.

The cases in which salol was begun on the third day of the disease number fifteen, with three failures.

The cases in which salol was begun after the third day of the disease number thirty, with four failures. In one case (No. 22) of the parenchymatous form, though the pain subsided in twelve hours, the throat continued to swell for some time. A similar occurrence has been noted by both Wright and Gougenheim.

[15] Bull. gen. de Therapie, Paris, No. 16, 1887.

TABLE II.—SALOL BEGUN ON THE THIRD DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	F	27	No	No	Parenchy.	3	44	
2	F	28	"	"	Lacunar	3	24	
3	F	26	Yes	. . .	"	3	8	
4	M	33	fam.	No	Peritons.	3	8	Incision; no pus.
5	M	4	No	"	Parenchy	3	24	
6	M	10	"	"	"	3	36	
7	M	19	"	Yes	Peritons.	3	8	Incision; no pus.
8	F	21	"	"	Parenchy	3	20	
9	F	13	"	No	Lacunar	3	12	
10	M	7	Yes	Yes	Parenchy	3	12	
11	M	19	No	"	"	3	failure	
12	F	22	"	"	"	3	. . .	
13	M	7	Yes	"	"	3	12	
14	M	19	No	"	"	3	failure	
15	F	22	"	"	"	3	. . .	

Average number of hours before relief, 14.

A word or two must be said about the poisonous effects of salol. In my eighty-one cases no unpleasant effects were observed. The urine was examined in several instances and always showed a dark color suggesting carboluria. On testing it gave the reaction for salicyluric acid, the form in which the salicylic element is probably excreted. Tinnitus has been observed in a few cases but never to an uncomfortable extent. The authetic cases of salol poisoning are really very few in number. Two or three have been observed where the dosage has not exceeded sixty grains in the twenty-four hours. Church[16] gave to a typhoid patient five grains every four hours. On the third day of this dosage the patient was restless, had a herpetic eruption on the upper part of the trunk down to the level of the tenth rib. A discontinuance of the drug and the application of a carbolic ointment relieved the condition in four days.

Demme has observed urticaria in one case after a clyster of two grammes, but in a somewhat extensive use of this quantity daily by the mouth had no other case of poisoning. It is without the province

TABLE III.—SALOL AFTER THE THIRD DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	M	38	Yes	Yes	Peritons. . .	4	14	Incision; pus.
2	F	40	. . .	. . .	Lacunar . .	4	6	
3	F	16	fam.	Yes	Parenchy. .	5	No relief	Iron and potash gave
4	F	40	No	No	Acute Phar..	5	24	[prompt relief.
5	M	17	"	"	Parenchy. .	6	48	Acute laryngitis.
6	F	27	"	"	Sub-ac.Phar.	8	48	
7	F	16	"	"	Peritons. . .	7	8	
8	M	23	"	Yes	" . .	8	No relief	Incision; no pus.
9	F	18	"	"	Parenchy. .	21	6	
10	M	20	"	No	" . .	7	10	
11	M	10	Yes	"	Lacunar . .	4	14	
12	F	16	No	"	Ac. Phar . .	4	6	
13	F	42	"	"	Parenchy. .	4	10	
14	F	52	Yes	. . .	Peritons. . .	7	6	
15	M	27	"	Yes	" . .	5	28	Incision; pus.
16	F	23	fam.	"	" . .	5	14	Incision; no pus.
17	F	2	No	"	Parenchy. .	21	60	Post-nasal adenoids.
18	F	12	"	No	" . .	14	24	
19	F	14	"	"	" . .	7	12	
20	F	10	. . .	. . .	" . .	4	16	
21	F	11	No	No	" . .	7	18	
22	M	29	"	"	" . .	4	12	Swelling increased after
23	F	10	"	Yes	" . .	4	16	[subsidence of pain.
24	F	11	"	"	" . .	7	18	
25	F	29	"	"	" . .	4	16	
26	M	21	"	No	Peritons. . .	4	No relief	Incision; pus; latter re-
27	M	41	"	"	Acute Phar..	7	48	[accumulated.
28	M	5	fam.	"	Lacunar . .	21	8	
29	M	21	. . .	. . .	Peritons. . .	4	No relief	Incision; pus.
30	M	41	No	No	Acute Phar..	7	48	

Average number of hours before relief, 18.
Average of all the salol cases, 14⅓.

[16] N. Y. Med. Record, March 3, 1880.

of this paper to go into details of salol poisoning. Suffice it to say that in a mild degree gastro-intestinal irritation is the leading feature. In more profound cases there are evidences of renal disturbance. All agree that the carbolic factor is the real damaging agent. Fatal results are not unknown. Derignac [17], Aufrecht, [18] Hesulbach,[19] Cartaz,[20] Morel-Lavalle, [21] Josefowitsch and Chlapowski have all made contributions to the literature of the drug's toxicology. One writer goes so far as to say that he regards it imprudent to give salol without at the same time giving its antidote sulphate of soda.

We need not be at all disturbed by the slight coloring of the urine which will result from the daily dosage of sixty grains.

The second remedy employed was guaiac. It was first suggested for tonsillitis by Sir Thomas Watson. Its reputation for the relief of rheumatic manifestations is as old as guaiac itself. Hence came its early employment in all throat conditions regarded as the expression of the rheumatic diathesis. Edes, [22] credits it with the power to absort peritonsillar inflammations but regards it as without any specific action the lacunarform.

TARLE IV.—GUAIAC BEGUN ON THE FIRST OR SECOND DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.
1	F	10	Yes	Yes	Parenchy.	1	6
2	M	26	No	"	"	1	6
3	M	3	fam.	No	"	1	24
4	M	19	Yes	Yes	"	2	48
5	M	51	No	. . .	Peritons.	2	8
6	M	29	"	No	Acute phar.	2	24
7	M	12	"	Yes	Parenchy.	1	24
8	F	14	"	. . .	Lacunar	2	4
9	M	45	"	No	Acute phar.	2	24
10	M	8	"	"	Lacunar	1	No relief
11	M	10	fam.	"	"	1	20
12	F	12	Yes	Yes	Parenchy.	1	8
13	F	24	"	"	"	1	6
14	F	19	No	No	Lacunar	1	40
15	F	16	"	Yes	"	1	No relief
16	F	19	"	"	"	2	36
17	F	10	"	"	Peritons.	1	36
18	M	18	fam.	"	Lacunar	2	4
19	F	18	"	"	Parenchy.	2	36
20	F	7	"	No	"	1	20

Average number of hours before relief, 18.

My own cases number forty-four. The first group comprises twenty cases; treatment begun on the first or second day of the disease. The preparation em-

TABLE V.—GUAIAC BEGUN ON THE THIRD DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	M	30	No	Yes	Parenchy .	3	12	Acute phar. also.
2	F	13	Yes	"	"	3	48	
3	M	1½	No	No	Acute Phar.	3	24	
4	M	17	"	"	Peritons. .	3	18	Pus discharged before [treatment.
5	F	10	"	Yes	Parenchy. .	3	12	
6	F	22	"	"	" . .	3	38	Acute faucitis.
7	F	4	fam.	No	" . .	3	48	
8	M	67	"	Yes	Peritons. .	3	No relief	Took medicine only 8 hrs.
9	M	20	No	"	Parenchy. .	3	"	Tonsils became more [swollen.
10	M	21	"	No	" . .	3	36	

Average number of hours before relief, 23½.

ployed was the ammoniated tincture in dram doses in hot milk every two hours.

In one case the remedy caused an acute exfoliative dermatitis. In two cases failure is reported and both went on to periamygdalitis.

The second group comprises ten cases.

Here also two failures are recorded, in one of which the patient grew distinctly worse in spite of the remedy.

The third group (treatment begun after the third day) embraces fourteen cases.

TABLE VI.—GUAIAC BEGUN AFTER THE THIRD DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	F	26	No	Yes	Parenchy. .	4	12	
2	F	10	"	"	" . .	. .	10	
3	F	19	fam.	No	" . .	7	4	
4	M	20	No	Yes	Peritons. . .	5	No relief	Incision; pus; well in 4 [days.
5	M	21	"	"	Lacunar . .	4	12	
6	F	17	"	"	Peritons. . .	7	8	Incision; no pus.
7	M	37	Yes	"	" . .	7	No relief	Incision; pus.
8	M	19	No	"	Acute Phar. . .	. .	4	
9	F	19	"	"	Parenchy. .	5	66	After 48 hours had become [peri-amygdalar.
10	F	24	. . .	. . .	Peritons. . .	5	No relief	Incision; pus; latter re-
11	F	21	No	No	" . .	7	4	" " [formed.
12	F	30	"	Yes	Parenchy. .	7	No relief	
13	M	32	Yes	No	" . .	28	24	
14	F	11	"	"	" . .	4	8	

Average number of hours before relief, 11.
Average of all the guaiac cases, 17⅓.

Failure is here recorded in four cases. In one case pus was present but reformed after incision. One case of the parenchymatous form ran on to the peritonsillar but was finally relieved in sixty-six hours without suppuration.

Certain disadvantages of guaiac claim a brief attention. It is an extremely disagreeable remedy to take. Sajous' method of using a menstruum of hot milk does but little to lessen this unpleasant feature. S. Solis Cohen [23] highly extols the compound guaiac gargle made as follows:

Take ʒij of chlorate of potash, dissolve in hot water and set aside. Then take a ʒvj bottle, put in it ʒvj of clarified honey, and smear the sides of the bottle with it, shaking it well. After this add, teaspoonful by teaspoonful, shaking well after each additional spoonful, compound tincture of chinchona fʒij, and ammoniated tincture of guaiacum fʒij. To this solution add gradually the chlorate of potash which has been set aside, shaking the mixture thoroughly, and to this add water q. s ad ʒvj. Every half hour, or hour, or two hours, the patient should gargle or bathe the throat with a teaspoonful of this solution. Every two hours let him swallow a half teaspoonful or a teaspoonful.

Cohen found that if begun early it would relieve most cases in a few hours.

Potsdamer[24] corroborates these results obtaining in one case of a series of nine, relief in six hours, and in all by the third day.

The third remedy employed was salicylate of soda in five grain doses in solutions every two hours.

Several of the sodium salts have long enjoyed a good reputation for alleviating throat troubles. Many continental authors recommend the simple bicarbonate locally applied. Boisliniere [25] treated seventy-five cases with sodium benzoate and found that pain was relieved in from twelve to thirty-six hours, truly a remarkable showing. Favorable reference to the salicylate is frequently found. Hunt [26] found his cases relieved on an average in twenty-four hours. Mackay [27] and Hormadge,[28] also commend

17 Le Limousin Medical, Oct. 9, 1891.
18 London Lancet, May 23, 1891.
19 Fortschr. der. Med. Vol. viii, p. 453.
20 Revue de Laryngol. No. 16, 1891.
21 Archiv. de Laryngol. June 1891.
22 Handbook U. S. Pharm., 1880, p. 146.
23 Phil. Med. News, Vol. xliii, p. 146.
24 Med. and Surg. Reporter, Vol. I, p. 69, 1884.
25 St. Lous Courier Med., Feb. 1888.

its use. In fifty-seven cases treated by the latter none were even threatened with suppuration. The pain was nearly gone the next day and swallowing was easy.

My own cases number forty-four. The first group comprises fifteen.

TABLE VII.—SODIUM SALICYLATE BEGUN ON THE FIRST OR SECOND DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Sore Throat.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	F	13	No	No	Lacunar . .	2	60	
2	F	8	fam.	Yes	Parenchy. .	2	18	
3	M	20	"	"	Acute phar. .	2	No relief	Hot soda gargle relieved in [12 hours.
4	F	30	Yes	"	" . .	1	72	
5	F	19	No	No	Lacunar . .	2	36	
6	M	33	"	"	Ac. pharyng.	2	12	
7	F	22	"	"	Parenchy. .	2	24	
8	F	23	Yes	Yes	" . .	1	24	
9	F	21	No	"	Lacunar . .	1	None	Grew worse after 48 hours.
10	F	23	Yes	"	" . .	1	36	Sub-acute pharyngitis.
11	M	18	No	No	Parenchy. .	2	36	Acute pharyngitis.
12	F	17	"	Yes	Peritons. . .	1	12	
13	M	17	fam.	"	Acute Phar. .	2	16	
14	M	22	No	No	Parenchy. .	2	4	
15	M	16	"	"	Peritons. . .	1	8	Incision; no pus.

Average number of hours before relief, 24.

Here again two complete failures are chronicled. In one, a hot bicarbonate gargle afforded relief in twelve hours. The second grew steadily worse for two days, and was then lost sight of.

The second group embraces twelve cases.

TABLE VIII.—SODIUM SALICYLATE BEGUN ON THE THIRD DAY OF THE DISEASE.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	F	26	Yes	No	Acute phar. .	3	20	
2	F	31	No	Yes	Parenchy. .	3	18	
3	F	57	"	No	Peritons. . .	3	No relief	Incision 2 days later; pus.
4	F	30	fam.	"	Lacunar . .	3	24	
5	F	20	. . .	Yes	parenchy. .	3	20	
6	F	8	No	. . .	" . .	3	4	
7	M	39	"	Yes	" . .	3	36	
8	M	22	"	"	Peritons. . .	3	24	Incision; no pus.
9	M	24	"	No	" . .	3	12	
10	F	31	"	"	. . . . .	3	No relief	Iron and potash relieved [in 12 hours.
11	F	36	"	"	Parenchy. .	3	36	Also acute pharyngitis.
12	F	37	"	Yes	Peritons. . .	3	8	Incision; pus.

Average number of hours before relief, 17.

Of the two failures, pus formed in one after two days. A second obtained speedy relief from the iron and potash gargle.

The third group comprises seventeen cases.

Six failures are here recorded. One was quickly relieved by a hot bicarbonate of soda gargle, and a second by iron and potash internally. In the other cases of failure nothing of special interest is recorded.

To summarize, then: Out of 169 cases 81, or 48 per cent. treated by salol, experienced relief on the average in 14⅓ hours; 44, or 26 per cent. treated by guaiac, in 17⅓ hours; 44, or 26 per cent. treated by sodium salicylate, in 18½ hours. The preference, therefore, is in favor of salol.

One therapeutic suggestion mentioned by Routh[29] is worthy of note. He believes that if salicin (with which he has treated many cases), is continued for a week or so after the subsidence of the acute symptoms, it will prevent the chronic hypertrophy of the tonsils which we so often observe as a sequel of repeated attacks.

[26] London Lancet, Vol. I, 1882, p. 391.
[27] British Med. Jour. Oct. 4, 1892,
[28] Lancet, June 10, 1882.
[29] London Lancet, March 18, 1882.

It is pertinent here to consider what bearing this mass of clinical material has on what we may call the rheumatic aspect of sore throat. No small number of authorities regard throat troubles of the nature described as always a manifestation of the rheumatic diathesis. This is an extreme view and one not, I think, upheld by facts. It is manifestly a begging of the question to assert that this is always so in the case of first attacks. In my own cases, this point has been

TABLE IX.—SODIUM SALICYLATE BEGAN AFTER THE THIRD DAY.

Case.	Sex.	Age.	Previous Rheumatism.	Previous Throat Disease.	Diagnosis.	Day of Disease.	Hours before Relief.	Remarks.
1	F	24	No	Yes	Peritons. . .	14	12	Incision; no pus.
2	F	23	"	"	Acute phar. .	4	Failure	Soda gargle relieved.
3	M	29	fam.	"	" . .	5	12	
4	F	39	"	"	Peritons. . .	. .	No relief	
5	F	22	"	"	Sub-ac. phar.	4	24	
6	F	21	No	"	Acute phar. .	7	12	
7	M	20	fam.	No	" . .	7	36	
8	M	20	No	"	" . .	7	No relief	
9	M	32	. . .	Yes	Parenchy. .	8	48	
10	F	30	fam.	"	Lacunar . .	4	No relief	
11	M	26	No	"	Peritons. . .	4	48	Incision; no pus.
12	M	25	fam.	"	Parenchy. .	4	24	
13	F	15	Yes	"	Peritons. . .	5	12	
14	M	21	No	"	" . .	8	24	
15	F	28	"	"	Acute phar. .	10	8	Acute lingual tonsillitis.
16	F	10	"	No	Parenchy. .	5	None	Iron and potash relieved.
17	M	28	. . .	Yes	Peritons. . .	4	"	Incision; no pus.

Average number of hours before relief, 15.
Average in all sodium salicylate cases, 18½.

carefully inquired into, and a definite answer obtained in all but seven. Dividing then the remaining 162 cases into rheumatic and non-rheumatic groups, we find forty-seven, or 29 per cent., in the former, and 115, or 71 per cent., in the latter. In the former are included all in which there has been either a personal rheumatic attack, a family history of rheumatism, growing pains, or any other of the composite features of the disease. These figures differ somewhat from those of Haig Brown,[30] who found that out of 119 cases, twenty-eight had rheumatic pains, thirty-eight rheumatism, and ten had had rheumatic parents—that is, seventy-six, or 64 per cent., had some rheumatic tendency. Fowler[31] believes that it will be found that 80 per cent. of all cases of rheumatism have had previous sore throats.

I cannot help believing that in many of these cases, a previous rheumatic history is merely a coincidence. This view receives a certain confirmation in the therapeutic results reached in the rheumatic and non-rheumatic cases respectively. Thus in the forty-seven cases of the former group relief averaged sixteen and one-half hours, while in the 115 cases of the latter group, the average was a trifle over seventeen hours—practically the same.

My views, therefore, in regard to the treatment of acute simple sore throat of the varieties alluded to, may be summarized as follows:

1. I believe that in salol we have a remedy which, in the vast majority of cases, will give relief quicker than any other. Occasionally it utterly fails. Where it does so, I have found that iron tincture with potassic chlorate seems to be the best substitute. It is my conviction that this latter combination finds its best field in those patients who have already had many previous attacks, and in which there is more or less of an interstitial deposit of connective tissue in the mucous membrane. Salol is to most patients

[30] Brit. Med. Journal, September 12, 1888.
[31] Lancet, December 11, 1880.

far more agreeable than sodium salicylate, and vastly more so than the nauseating guaiac.

2. If peri-amygdalar infiltration has already set in, it is an open question in every case as to whether we shall be able to prevent suppuration. An incision is I believe indicated wherever there is engorgement, even though no pus has yet formed. The latter rarely comes before the fourth day. If it is not found no especial discomfort, then or thereafter, results to the patient from the incision, particularly if a little cocaine is used. The incision should be made where the pus is most likely to form, viz.: high up, in front of and above the pillars, far more commonly the anterior.

3. If pus is present, free incision towards the median line is indicated. It should be followed by a hot bicarbonate of soda gargle, together with poultices on the outside.

4. Care should be taken to thoroughly open the bowels with a mercurial and a saline at the commencement of treatment in any case.

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PURULENT BRAIN DEPOSITS, AND PHLEBITIS AND THROMBOSIS OF THE CEREBRAL VEINS AND SINUSES FOLLOWING EAR DISEASE.

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(*Continued from page 645.*)

It has been interesting to note the relative frequency of males and females to these diseases, and my statistics show the following:

Males	86 cases.
Females	46 "
Sex not stated	37 "
	169 cases.

The extra liability of males to diseases of this character is probably due to the increased exposures incident to male life.

More cases occurred at the ages of twenty-three and twenty-five, and the average age appears to be between nineteen and twenty.

The ages most frequently involved are from seventeen to twenty-six inclusive, which is perhaps due to youthful indiscretions and the increased exposures common to this period.

These statistics show a proneness to such diseases during the first three years of life, which is probably due to the thin character of the cranial bones, the tendency to middle ear abscesses during childhood, and the inability to give to babes suffering from aural complaints the care possible in later life.

As to which ear is most frequently involved, the statistics show as follows:

Right ear	81 cases.
Left ear	69 "
Ear not stated	19 "
	169 cases.

Why the right ear is more frequently affected is not an important question, as the additional frequency of involvement is small, only twelve more cases being attributed to the right than to the left ear, and the absence of notes upon this point renders conclusions doubtful.

Let us first consider, in as concise a form as possible, the subject of the intra-cranial presence of pus, outside of the veins and sinuses, dependent upon an ear disease. This includes, of course, not only brain abscesses, but deposits of pus, in any situation coming under this heading, either in patches, or diffused generally over certain places or spaces.

The importance of this subject may be inferred from Barr's observations, that the deaths in London for one year from brain abscesses, following otorrhœa, were eighty-six; and in the eight principal towns of Scotland were twenty-six.

Barker considers 50 per cent. of all cases of brain abscess to be due to otorrhœa, and his view is shared by von Bergmann. Lebert places the proportion at 25 per cent., while Meyer and Ogle believe it to be about 30.

The starting point and focus of this trouble is the middle ear. It may result from either acute or chronic otorrhœa, with the tendency largely in favor of the latter.

This observation applies to all fatal cerebro-aural affections, and the statistics that I have framed upon this subject are as follows:

Cerebro-aural affections dependent upon chronic otorrhœa	118 cases.
Cerebro-aural affections dependent upon acute otorrhœa	10 "
Not stated	41 "
	169 cases.

A fair proportion of these ten cases proceeding from acute otorrhœa were instances of brain abscesss. This is especially noteworthy, because many observers discredit the fact that brain abscesses are *ever* produced from acute otorrhœa, and von Bergmann is especially wedded to this belief. My records show six cases of this character, and the reporters are Bürkner, De Rossi, Knapp, Pooley and Allport. These were strictly cases of brain abscess, starting from acute purulent otorrhœa.

Acute tympanic abscesses have a natural tendency to recovery, even if left entirely to themselves, and favorable results frequently follow even the most disadvantageous circumstances — hence the infrequency of cerebro-aural complications. Chronic otorrhœa, on the contrary, is a much more dangerous condition, and when the proximity of the middle ear, mastoid antrum and cells to the brain and its membranes, and the different sinuses, veins, etc., is considered, it is not singular that such should be the case. It is in chronic otorrhœa that we observe the foul and irritating discharge, either free or retained; also granulations and polypi, necrosis of the ossicles, tympanum, mastoid antrum and cells. Here we find necrotic openings in the walls of these cavities, and encroachment of the disease to the intra-cranial cavity. And here we notice the carrying of the disease to the brain and sinuses by the more insidious process of germ migration, by means of the minute osseous foraminæ or small blood-vessels that are not infrequently noticed connecting the tympanum, antrum, or cells, with the intra-cranial cavity. Cerebro-aural affections are especially liable to occur when a tympanic discharge has been suddenly stopped, and there can be no doubt that the antiseptic powders now so freely used by insufflation, have precipitated many attacks of this nature. Such powders undoubt-

edly have their use, but they should be handled with judgment, and should *never* be used in acute otorrhœa, and when employed, the parts should simply be lightly dusted, and not heavily coated.

How does the disease extend from the tympanum, antrum and cells, to the intra-cranial cavity?

Probably the most frequent method of extension is through the roof of the tympanum into the middle cerebral fossa, and from thence to the temporal lobe. In looking over the list of necrotic openings in the temporal bone, as shown by the autopsies in my collection of cases, I find that by far the most frequent location for a necrotic fistula is in this situation. The next most frequent location for such an opening, is through the inner mastoid plate to the posterior cerebral fossa, and from thence to the cerebellum.

These circumstances are quite significant in localizing brain abscesses following otorrhœa, as, if mastoid disease can be eliminated from the case, either by operation or otherwise, the probability is that the abscess is in the temporal lobe.

The disease may extend by necrosis also, through the internal ear, especially by way of the semicircular canals. And it may be directly carried to the brain, even when no necrosis is present, by several methods, as described by Barr.

1. By the foramenæ in the bone, through which pass vessels, nerves, and connective tissue.

2. By the destruction of the two fenestral membranes; in which case the internal ear becomes invaded, after which the only intervening tissue is the perforated lamella of bone, through which pass the fibres of the auditory nerve.

3. Part of the blood supply to the tympanic cavity comes from within the cranium, and the accompanying veins might carry disease to the brain, either by germ migration, or phlebitis.

Inflammation probably passes from the dura to the brain by contiguity of tissue, as there is no direct vascular or lymphatic connection between the two. Usually the abscess is located in the immediate vicinity of the focal point of disease, although this is not always the case, as it sometimes happens that healthy dura mater and even brain tissue, may intervene between the seat of original disease and the abscess. Under these circumstances infectious microorganisms probably pass into the circulatory system from the purulent points, or are transported along the connective tissue which envelops the vessels.

The subject of diffused purulent deposits within the cranium, and that of localized abscesses, may be considered practically under one head. Isolated, encapsulated brain abscesses, following aural disease, are not of very frequent occurrence, and when found, have not been demonstrated to possess distinctive diagnostic features that would necessitate separate consideration. Indeed, my statistics only show a record of nine encapsulated abscesses in all the cases.

Almost all cerebro-aural pus deposits are accompanied by more or less meningitis, either simple or purulent. It is usually localized at the focus of disease, and in consequence its most common seat is near the tympanic roof, although it may be much diffused, and even extend down to the membranes of the cord.

Meningitis and other brain diseases do not always follow destruction of the osseous walls of the skull. The dura mater is extremely tough and fibrous in its structure, and often resists for a long period the destructive action of pus, before softening and perforation occur. Indeed, some cases have been found where the tegmen-tympani was congenitally absent, and yet no brain lesions have followed a chronic purulent otorrhœa. Perforation of the dura mater, however, is not at all necessay to the extension of the disease to the brain membranes and brain substance itself.

When purulent meningitis takes place, it more frequently affects the meninges at the base of the brain, than those at the convexity. This is probably due to the downward tendency of inflammation. The substance of the cortex of the brain usually becomes more or less infiltrated with pus in these cases.

Besides being found in the membranes, pus may be found in almost any part of the brain substance, and is often generally distributed over an entire hemisphere, and sometimes is deposited on the opposite side of the brain from the point of lesion.

Abscesses may be situated in different parts of the brain, and are most frequently found in the temporal lobe and the cerebellum, in the order of their mention. My records show the presence of abscess in the temporal lobe forty times, and in the cerebellum thirty-one, and they are not infrequently found in the middle lobe.

It must be remembered, that while I have recorded 169 cases of intra-cranial diseases following otorrhœa, only ninety-eight of them were recorded as abscesses proper. This magnifies the percentage of abscesses found in the temporal lobe and cerebellum.

Notwithstanding the fact that many brain abscesses are connected with the tympanum, by a fistulous opening through the tegmen-tympani, it is a noteworthy fact, that the *body* of the abscess is not usually located *immediately* above the diseased tympanum. In the event of its being here situated, the roof of the tympanum would be a strong vantage ground for operation, and many abscesses would probably be self-limited, and quiescent in their nature, owing to a spontaneous and natural drainage through the tegmen.

McBride thinks that if the auditory nerve is involved, as shown by the lack of bone conduction, the abscess will probably be found behind the tentorium. Barker concludes that cerebellar abscesses are *always* found at the outer and anterior portion of the cerebellum, near the petrous. This view cannot be substantiated, for, while it is true, this is by far the most frequent point of lesion, cerebellar abscesses are sometimes found in other parts of the cerebellum, as will be noticed by a perusal of some of the reports of autopsies in my statistics.

Korner considers that children under ten years of age, seldom suffer from cerebellar abscesses, on account of the great distance of the posterior fossa of the skull from the auditory meatus at this age.

Hulke believes that in young people, the abscess is located, usually above the tentorium cerebelli; in older people, below it.

Abscesses are sometimes multiple, connected or unconnected, and this should always be borne in mind, in operative interference, if a thorough opening of an abscess does not lead to recovery.

(*To be continued.*)

SPONDYLITIS.

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Spondylitis, also called Pott's disease, spinal caries, etc., may be the result of traumatism, syphilis, or tuberculosis; or it may follow scarlet fever, measles, whooping cough, etc., and appear to be dependent upon the morbific germ of those diseases; but however it begins, or whatever be the specific germ assumed to be the cause, the symptoms presenting and the indications for treatment are the same, and all cases sooner or later show evidences of the presence of the tubercular bacillus. It is probable that the disease may commence in any of the connective

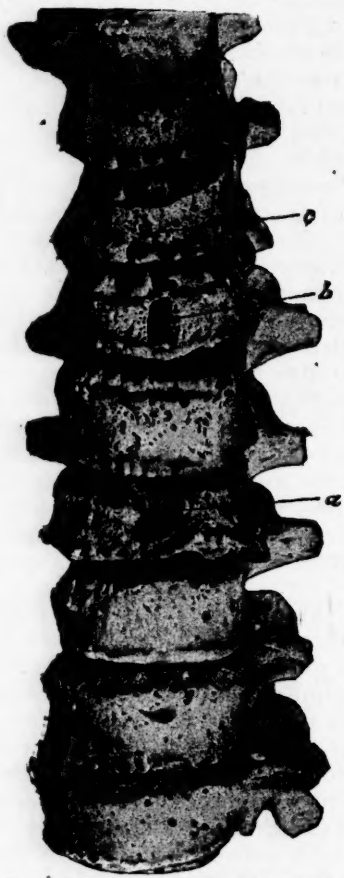

FIG. 1.—Lumbar and dorsal spondylitis commencing. *a*. Opening in anterior surface of second lumbar vertebra. *b*. Similar opening in the twelfth dorsal vertebra. *c*. Beginning erosion of the eleventh dorsal vertebra.

tissues composing the spinal column, but there is little satisfactory evidence to show that it ever begins elsewhere than in the cancellous tissue of the vertebral bodies, or upon their anterior aspects. Very rarely has the disease been found so located as to render it a fair assumption that the primary focus was located either in the intervertebral discs, the laminæ, arches, articular facets, or processes.

In traumatic cases the early symptoms vary with the injury received; the late symptoms are those of the ordinary tubercular case. Spondylitis arising without assignable cause in very young children, cases of multiple joint disease where spondylitis is present at two points separated by one or more healthy vertebræ, or coëxisting with disease at some other joint, and spondylitis in classes notoriously syphilitic, may be suspected of having a syphilitic rather than a tubercular origin and worthy of the administration of large doses of mercury and iodide of potash. It is only in the improvement which follows this treatment that these cases materially differ from the ordinary tubercular cases. Those cases which follow scarlet fever, measles, etc., show no peculiarities except a proneness to early suppuration. The ordinary tubercular case presents the irritative symptoms indicative of inflammation in the vertebral bodies. These will be discussed in detail at another time.

FIG. 2.—Pained facial expression in spondylitis.

The principles of treatment are immobilization and relief from weight bearing; in a word, *physiological rest of the diseased part*. The means which the surgeon employs to secure this physiological rest will be discussed in a later paper.

Symptoms in general.—Certain symptoms are common to the disease in whatever part of the spine it may be located; certain other symptoms are peculiar to the part of the spine affected. The symptoms common to the disease in any part of the spine are as follows: The face expresses apprehension, pain and premature old age. The patient walks and moves with care as if to avoid any jar or sudden movement. There can be obtained a history of uneasiness, fretting, and irritability, and for some time the patient has been disinclined to his usual active exercises and has been easily fatigued. Distant pain, felt in the terminal filaments of the nerves whose motor branches go to supply the muscles controlling motion of the spine at the point of disease has generally been felt, though it may have been absent,

may also have been restlessness, crying, and screaming during the first hours of sleep. Deformity may or may not have been noticed; and the complications—abscess and paralysis—may or may not have appeared.

For the proper examination of a patient he should be stripped naked. Girls who have reached the age of puberty and women should receive certain consideration, and it is the custom to examine such with the back alone bared. It is convenient to have the undershirt put on in front as an apron, with the sleeves pinned or tied about the neck; the skirts can

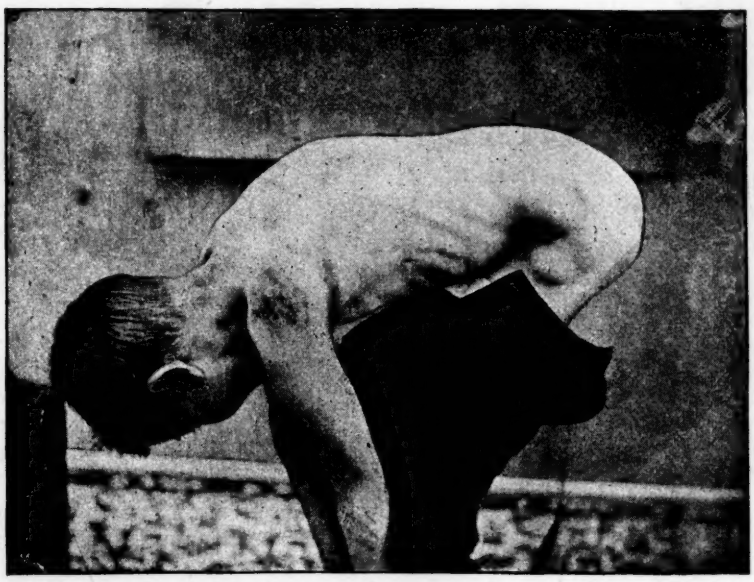

FIG. 3.—Lumbar spondylitis. Stooping with rigid lumbar spine.

then be dropped to a level with the greater trochanters and held with a large safety pin, or by a piece of bandage tied around the hips. The back is then inspected for any lateral deviation, excurvation, incurvation, or prominent vertebræ. If found, the disease may be suspected of being present at the middle of the curvature; but it must be remembered that spondylitis, easily demonstrable is, usually present some months before deformity of the spinal column is apparent. All of the normal motions should now be tested, both actively and passively; the head should be rotated to right and to left, and the shoulders twisted in the same directions while the pelvis is held steady; the spine should be bent forward and backward, and to right and to left. Any portion which shows rigidity to *all* the normal motions is, or has been, the seat of an inflammatory process; but if there be rigidity to bending in one direction only, or if bending in any one direction be normally free, the diagnosis of spondylitis is rendered extremely doubtful. It is upon this rigidity, which for a long time is due solely to involuntary muscular spasm, that the diagnosis must depend; it is ever present, both sleeping and waking, and nothing abolishes it except profound anæsthesia and the termination of the inflammatory process. It is the first symptom to appear and the last to disappear; and when, and only when, it is no longer present can a cure be safely predicated.

Tenderness to direct pressure over the suspected area, unless local abscess be present, will not be found. This local tender point, which is taught by the professors of and the text-books on general surgery as *the* diagnostic symptom, always counts against rather than in favor of a diagnosis of spondylitis. It should be remembered that the disease is located in the vertebral bodies, and usually in their anterior parts, and in any case is far beyond the reach of direct pressure, and consequently tenderness to direct pressure is, unless supported by strong confirmatory evidence, to be looked upon as indicative

FIG. 4.—Lateral deviation in the spine in commencing spondylitis.

of some other condition than the disease in question.

Downward pressure and concussion on the head, and sudden twisting of the spine by wrenching at the shoulders when the patient is off his guard, are tests as unnecessary as harmful. They will not be found to be of any value in the very early period and can scarcely fail to inflict injury as well as pain upon the patient when the disease is at all advanced. Sooner or later deformity of the spine appears, and a lateral curvature with or without twisting of the vertebræ—rotation—often appears before kyphosis, the so-called "angular curvature," makes its appearance. If but one, two, or three vertebræ be affected, and if the destructive process has been considerable, the deformity fairly approximates an angle; but if several vertebræ are diseased each to only a slight degree, the deformity will be a curve.

Motor paraplegia affecting both lower extremities and at times the bladder and rectum, and at times also the upper extremities, may come on before the bony deformity or with the deformity, or comparatively late in the disease. It is generally due to thickening of the membranes of the cord from the contiguity of the inflammation in the bone, or to an actual infiltration with tubercular material. Paraplegia occurs by far the most frequently when the disease is located in the upper dorsal region. It bears no relation to the acuteness of the angle; it may disappear while the bony deformity goes on in-

creasing; and it has seldom been shown to depend upon bony pressure. The paraplegia is characterized by an exaggeration of all the tendon reflexes in the affected extremities, a tonic spasm of all the muscles,

FIG. 5.—Lower dorsal spondylitis, with ordinary deformity. Almost complete absence of the body of the ninth dorsal vertebra. In front is a fistulous canal leading to a psoas abscess.

and an inability, more or less complete, to move any portion of the affected parts.

Although tubercular "pus" is probably formed to some extent, the tubercular abscess does not appear in all cases. Abscesses are quite frequently seen when the disease is in that part of the spine

FIG. 6.—Cervical spondylitis. Patient will not let head dangle.

below the diaphragm; less frequently with disease in the cervical region, and still less frequently with disease of the dorsal spine above the diaphragm. The abscess may make its way in any direction, opening externally, or into any of the open or closed cavities of the body, or it may become absorbed even after it has attained very considerable proportions.

Cervical spondylitis is most frequently found in the upper two or three vertebræ. When the cervical spine is suspected, before deformity has occurred, in very young children, the child should be examined by placing him prone across the parent's knees. If disease exists the child will not let the head dangle no matter how prolonged the examination may be. If placed supine, he will show no inclination to bend

FIG. 7.—Cervical spondylitis. Patient will not let the head dangle.

the head toward the sternum as in the first act of rising. As the disease advances malposition comes on. If the upper portion of the cervical spine be affected, twisting of the head may be expected; with disease somewhat lower down the head is advanced, the chin dropped on the chest, an angular projection of the spine at the diseased point may be felt, and the posterior spinal muscles stand rigidly out and may simulate an abscess in appearance. When the disease is still lower down the chin is ele-

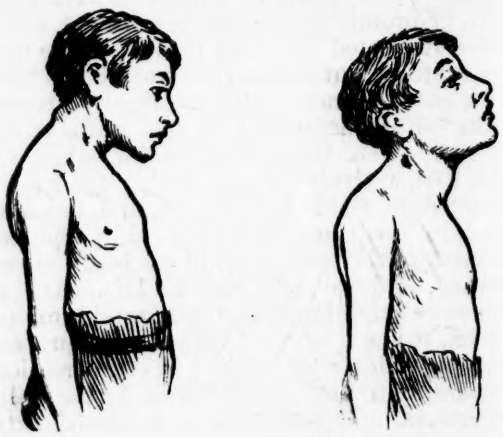

FIG. 8.—Cervical spondylitis. Chin dropped. Cervical spondylitis. Head advanced and chin raised.

vated and relatively somewhat advanced, and the head is thrown back towards the shoulders, and in extreme cases may rest upon them. The face expresses apprehension, and the head is moved, if the patient can move it at all, with anxious care. All motions both active and passive at the point of disease are restricted to a greater or less degree, or

wholly abolished. Pain may be complained of running up the back of the neck and head, down the arms or in the chest. Abscess does not frequently occur; when it does it usually points laterally on

FIG. 10.—Dorso-lumbar spondylitis. Carefully reaching for an object on the floor.

one or the other side of the neck; it may point in the pharynx. The pharynx, however, need not be examined unless some symptom point to abscess in

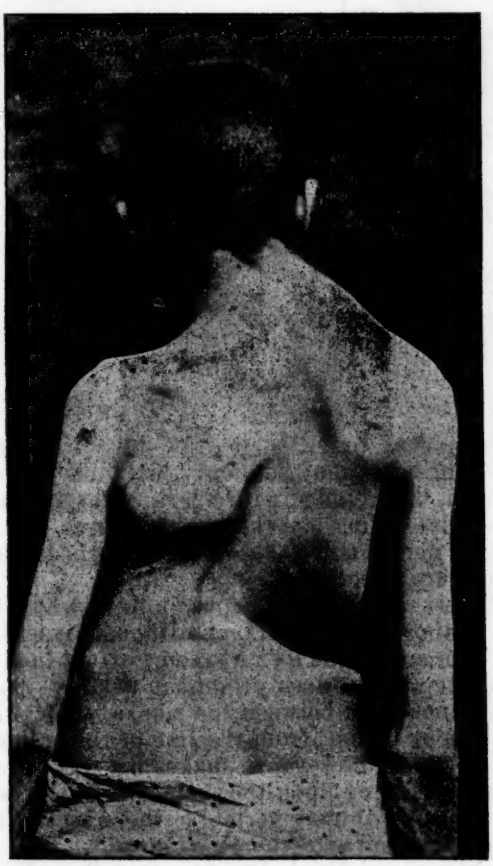

FIG. 11.—Cervico-dorsal spondylitis. Lateral deviation with marked rotation.

that location. Before the formation of abscess the finger in the throat reveals nothing, it is very repulsive to the patient, and the normal prominence of the vertebral bodies may mislead the surgeon. Paraplegia is seldom a complication of spondylitis in the cervical region. Occurring, it may affect the lower extremities alone, as is the rule, or the upper extremities as well. Striking downward upon the top of the head with the open palm to test the sensitiveness of the veterbræ is a useless and a most barbarous procedure.

FIG. 12.—Lumbar spondylitis. Patient climbing up his own legs.

Dorsal spondylitis is much more frequent than disease in the cervical and lumbar regions. Before the appearance of kyphosis the diagnosis must depend upon the persistent distant pain, a disinclination to indulge in rough play, a growing tendency to stand with the elbows resting upon a chair or table, a grunting respiration, and an inability to rise from a stooping posture or pick up an object

FIG. 13.—Dorsal spondylitis. Prominent chest.

from the floor without resting the hand upon the knee; and it should be borne in mind that patients are frequently treated for many months for belly-ache before deformity appears. Any distant pain which does not yield readily to the proper medication should lead to a careful examination of the spine. Often there is crying when the child is lifted, and cough accompanying the grunting respiration.

If the upper two or three dorsal vertebræ be the ones involved, the head may be thrown backward and the neck held rigid to forward and lateral bending; and paraplegia may even come on before any kyphosis can be made out. When disease is located in the lower dorsal region, the patient may limp and complain of pain in the thigh, simulating hip disease, before any deformity is noted. Lateral deviation of the column, with or without rotation of the vertebræ, is often present before the antero-posterior deformity appears. In very young children, before any spinal deformity has appeared it is convenient to examine them by placing them across the separated knees of the parent. If there is disease the spine will not sag into an anterior curve in the normal way. If placed sitting upon a table with the knees straight, the child will not bend forward, arching the spine in the usual way. The patient is disinclined to forward bending, squatting with rigid spine instead of stooping when picking up an object from the floor, and evinces weakness on rising, often regaining the erect posture only by climbing hand over hand up his own legs.

FIG. 14.—Testing for psoas contraction. Shows normal extension.

There seems to be an almost universal belief among the rank and file of the profession, and this belief has been fostered by nearly all of the teachers and writers on general surgery, that the most early and constant, and in fact *the* diagnostic symptom of spondylitis is *tenderness on pressure over the point of disease*. There is no lack of knowledge as to the pathological anatomy; it is perfectly well known that the lesion is located in the vertebral bodies, and usually in their anterior portions, and that it is quite impossible that there should be tenderness on pressure over the spinous or the transverse processes. Unless then there be disease of the processes or laminæ, an exceedingly rare condition, or unless an abscess which will be readily detected by palpation be present, *tenderness on pressure will not be found in spondylitis*. In a doubtful case its presence must count as an important symptom *against* spondylitis.

When kyphosis has appeared however, the diagnosis will be readily made, for in addition to the peculiar and striking deformity, all of the symptoms heretofore mentioned are likely to be found on careful investigation. Sooner or later projection forward of the chest takes place, compensatory and proportionate to the angular deformity at the back. Paraplegia, which is more common when disease is located in the upper dorsal spine than elsewhere, may come on early before any deformity has appeared, or at any time during the course of the affection, or very late in the disease, and may recur again and again. It begins with exaggeration of the tendon reflexes, stumbling in walking, increasing lack of muscular control, and goes on until all control over the lower extremities is lost, and the limbs are held rigidly extended; at times they draw up with spasmodic crampings and may suddenly, without the patient's volition, be extended with a jerk. Passive flexion at the ankles induces marked ankle-clonus. Rarely the sensory nerves and at the same time the bladder and rectum are affected.

Abscess does not frequently appear when the disease is above the diaphragm, although it is probable that tubercular pus forms to some extent in all cases; when the abscess does present it usually makes its appearance from between the ribs a short distance, two to four inches, from the line of the spinous processes; rarely however it makes its way downward before appearing upon the surface. With disease in two or three dorsal vertebræ the abscess usually follows the course of the psoas muscle.

Lumbar spondylitis is less frequent than disease in the dorsal, but more frequent than disease in the cervical region. Lumbar spondylitis is usually first recognized by an awkward gait, a limp, and a slight lordosis. The shoulders are thrown backward, one or the other foot is slightly advanced, and the patient walks with care and holds his spine rigid. He is

even less inclined than in dorsal disease to forward bending. If there be pain it is usually felt down the anterior and inner surfaces of the the thigh. Most of the symptoms enumerated as characteristic of disease in the dorsal region will be found. Contraction of one or both psoas muscles may come on before the formation of abscess and before the appearance of kyphosis. It is this early involuntary spasm of the psoas muscle, flexing the thigh and limiting its extension before the appearance of deformity that leads to the mistaken diagnosis of hip disease even in the hands of experienced observers.

To test for contraction of the psoas muscle, the patient is placed prone upon the table, the pelvis is held firmly down with one hand while with the other first one and then the other knee is lifted upupward and backward. The freedom with which they can be raised, and the difference in extent, or the

FIG. 15.—Dorso-lumbar spondylitis. Psoas abscess pointing on the thigh.

extent to which they differ from the normal must be noted. Then with one hand upon the back at about the tenth dorsal vertebra and the other hand lifting both knees at the same time, the rigidity of that part of the spine is noted. It is upon this rigidity that the diagnosis must depend. In normal children the spine can be bent backward so far that the thighs are at nearly a right angle with the upper dorsal spine.

Paraplegia is not common. When it occurs it in no way differs from that found complicating dorsal disease. Abscess is frequent, usually following down the course of the psoas muscle and pointing on the anterior surface of the thigh below Poupart's ligament. When the disease is below the third lumbar vertebra the abscess may pass down and point in the buttock; or with disease located in any portion it may pass latterally and point in the loin some inches from the spine.

Differeutial diagnosis.—A strain may give the early symptoms of spondylitis; for a strain left untreated in a tubercular subject may become a true tubercular spondylitis. A strain should give a distinct history of traumatism.

A rachitic spine closely resembles the "rounded curvature" of spondylitis, the deformity is not infrequently a rigid one, and psoas contraction may also be present; but it will be found only in young children, and the child will nearly always present other

FIG. 16.—Rachitic spine.

evidences of rickets. The mistaking of a rachitic spine for spondylitis however will be of little harm to the patient inasmuch as the rachitic spine demands a rigid supporting brace.

Scoliosis—lateral curvature—will not be mistaken for spondylitis in that the curvature is not usually rigid until some time has elapsed and the deformity has become very considerable. On the other hand

FIG. 17.—Torticollis. The chin points away from the prominent sterno-mastoid muscle.

FIG. 18.—Cervical spondylitis. The chin points towards the prominent sterno-mastoid muscle.

spondylitis may be mistaken for lateral curvature and the necessary immobilization withheld and possibly exercises advised. A slight lateral curve with or without rotation, if it be rigid is probably a commencing spondylitis. Exercises should be withheld and a support applied. A few months will clear up the diagnosis. Pain is rarely associated with scoliosis; it is the rule with spondylitis, though it should not be forgotten that it may be absent. A careful circumferential outline of the chest may throw some light. In spondylitis it should be practically sym-

metrical; in scoliosis it very early becomes a symmetrical, bulging posteriorly on the side of the convexity of the curve and flattened posteriorly on the side of the concavity; in front the conditions are reversed.

Torticollis—wry neck—is closely simulated at the first glance by spondylitis in the upper cervical region. Still in many cases the diagnosis can almost be made at sight. In wry-neck the chin points *away* from the prominent sterno-mastoid muscle; in spondylitis it points *towards* that muscle, if only one muscle be prominent. In spondylitis the movements of the head are restricted in all directions; in torticollis only in one direction—that which puts the shortened muscle on the stretch.

Hip disease is not infrequently the diagnosis when contraction of the psoas muscle comes on in lumbar spondylitis prior to kyphosis. The patient walks with a limp, complains of pain in the groin or along the anterior surface of the thigh, the thigh is flexed on the pelvis, and attempts to overcome this flexion are resisted by involuntary muscular spasm and give the patient pain. It will however be found that the thigh can be flexed to the normal degree, and that when flexed sufficiently to fully relax the psoas muscle rotation at the joint is free, painless and normal. In a word in lumbar spondylitis extension is the only motion at the hip joint that is restricted by muscular spasm, whereas in hip disease motion in all directions is restricted.

The hyperæsthetic spine, also called irritable spine, if patiently and carefully examined gives no rigidity from involuntary muscular spasm; there is no true distant pain—the pain is located over some portion of the spine itself and is associated with tenderness on pressure. The lightest touch is often complained of more than firm deep pressure. The condition is most frequently found in young women and may have existed unchanged for years. There is no true kyphosis.

Malignant disease of the spine in its early stage cannot be diagnosticated from commencing spondylitis. The history of the case as to hereditary tendency taken together with the age of the patient and his general appearance may make the diagnosis of malignant disease probable, but nothing can be positively said until the progress of the case or the pressure of the tumor clears up the case.

Sacro-iliac disease is not of frequent occurrence, and its early symptoms are obscure. Muscular rigidity to bending in all directions of the lumbar spine will not be found unless the disease is associated with spondylitis of the lumbo-sacral junction. Examination by the rectum should be made in all cases suspected of sacro-iliac inflammation.

The tpphoid spine can of course be found only as a sequela of typhoid fever. There is tenderness on pressure, and on a lateral and forward bending, no special pain in the nerve distribution, no psoas contraction, the onset is sudden, the recovery rapid.

Prognosis.—As to deformity: In the cervical and dorso-lumbar (tenth dorsal to third lumbar inclusive) regions under favorable circumstances the deformity may be reduced if consolidation has not already taken place, and any increase prevented if consolidation has commenced. If no deformity has yet occurred its appearance can of course be readily prevented, and as a rule a rapid cure can be effected. In the upper dorsal region, first to sixth vertebræ, the deformity may be expected to increase under any form of treatment with which we are familiar. From the sixth to the tenth dorsal an increase can generally be prevented, but rarely can any deformity be reduced. When the disease affects the lower lumbar region, the fourth and fifth vertebræ and sacrum, the deformity may be expected to come on and to increase up to a certain point unless the patient be treated continuously in the recumbent posture until consolidation is well advanced. In a word, if the spine can be made straight and kept so sufficiently long for the ossific matter to deposit in the space made vacant by the disease an anchylosis free from deformity, or nearly so, will result. In a few cases more or less restoration of the normal motion is gained.

As to paraplegia: In nearly all cases the paraplegia is due to the pressure of the inflammatory products in the neighborhood of the bony tuberculosis; in these cases recovery may confidently be expected when shrinking of the new material takes place on the subsidence of the inflammation if the patient be kept recumbent for a sufficiently long time. Rarely the paraplegia is due to pressure from a displaced spicula of bone; but there is no evidence that it is ever caused by the acuteness of the angle of the canal. The authors have observed complete restoration of function to the paralyzed limbs in a case where the motor paralysis had been complete for nearly four years, and in another case a recent partial recovery where the sensory paralysis had existed for two years and the motor paralysis for ten.

As to life: Although spondylitis is a most prolonged and serious disease the prognosis as to life, is remarkably good. Only about 8 per cent. of cases receiving proper nursing and treatment die. Of these the cause of death in nearly all is tubercular meningitis, or a general tuberculosis in which the meningial symptoms play a most prominent part.

The duration of the disease in any particular case can not with accuracy be prognosticated. Treatment will be required for at least two years, and may be necessary for twice or thrice that length of time. The duration of the paraplegia is on an average about a year. Relapses of the paraplegia may occur, but are not frequent. The lack of an early diagnosis and of early, energetic and prolonged treatment may be considered as the cause of the deformity which ultimately results in so many cases.

THE U. S. QUARANTINE LAWS AND THEIR SCOPE.

Read before the Chicago Medico-Legal Society, Dec. 3, 1892.

BY JOHN B. HAMILTON, M.D., LL.D.,

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Mr. President and Gentlemen,—When our learned Secretary suggested to me the writing of a paper on some subject of mutual interest to the members of the Medico-Legal Society, I could only think of the question which for some years had a practical bearing on my acts as an executive officer, and which to-day is of deep interest to every inhabitant of our country, whether denizen or citizen. That question is: How far are our quarantine laws effective in preventing the inroads of disease? And growing from that another inquiry: Are there defects needing legislative remedy?

If my discourse to-night shall seem to dwell on the

legal more than upon the medical side of the questions proposed, it is because, as national health officer, I was in position to note the defects existing, and from time to time to propose legislative remedies. The later laws were therefore intended to remedy a defect in the sanitary defenses which on actual trial had been proved to exist.

Permeated with that extreme fear of paternal government that has from the beginning characterized our country, Congress has long hesitated to enact health laws falling under the "general welfare" clause of the Constitution, and has always rather chosen to enact them under the authority given Congress to regulate commerce. Indeed, there has seemed at times a rather pronounced disposition to evade the duty devolving upon Congress in the matter of the public health. Historical study of the dates of the Acts show that they have always been placed on the statute books shortly after a great epidemic. Thus the Act of February 1, 1799, was passed just after the close of the great yellow fever epidemic in Philadelphia, and the Woodworth bill of 1878 was placed on the statute book while the scourge of that year was threatened.

Let us now summarize the existing law. The Act February 1, 1799, provided for coöperation of all Federal officers in maintaining the State quarantines, and extending assistance to State officers. It harmonized the customs service with the quarantine service of the States so far as practicable, authorized the building of customs warehouses at quarantine stations, and in case of the existence of epidemic, the temporary removal of public offices, the courts and prisoners in confinement, to a place of safety.

It is not apparent, from an examination of the text of the Act, that Congress waived its jurisdiction in the matter, or its right to establish quarantine, but the plain purpose of the statute was to aid the State quarantines then in existence.

It is only fair to assume that the question of expediency was taken into account. The country was in infancy, and the public revenues were then needed for public purposes quite remote from quarantines. But so far from waiving its jurisdiction, it was directly implied in the following words: "But nothing herein shall enable any State to collect a duty of tonnage or import without the consent of Congress."

But this topic will be reverted to further on.

April 29, 1878, the Woodworth bill, known as the National Quarantine Act, became a law. In the interval, public sentiment had crystallized rapidly in favor of a National quarantine service, instead of State quarantines. Annual quarantine conventions, called by the mayors of several cities, were held respectively at Philadelphia, Boston, Baltimore and New York, the last named in 1860, and after full consideration it was agreed that Congress should be requested to establish a uniform quarantine system. The systems in vogue at that time varied with the port. The number of days detention, the methods of quarantine practice, were everywhere different, and the sanitary views widely conflicted. Commercial interests were injuriously affected by this lack of uniform practice at the different ports of entry.

The outbreak of the Civil War placed commercial topics in the background for a period of six years, and as commerce began to revive, we find a renewal of the old quarantine questions, but no definite action was taken until the passage of the Act of 1878

This Act really established a National Quarantine; and although no direct penalty was fixed for a violation of its provisions, yet the power given the Collectors of Customs to refuse entry operated to fairly enforce its provisions so far as power over vessel, passengers and cargo were concerned. No direct establishment of quarantine stations was authorized by the Act, but they were implied when the power to frame regulations was conferred on the supervising Surgeon General of the Marine-Hospital Service, acting under the direction of the Secretary of the Treasury, subject to the approval of the President. No appropriation was made to carry the Act into effect.

This Act prevents entry of any vessel or vehicle coming from any foreign port or country where contagious disease may exist, except under such rules and regulations as may be prescribed under the Act.

The law directs all consular officers to immediately notify the Surgeon General in case of an outbreak of an epidemic within their respective districts, and further authorizes and directs that officer to transmit the information thus obtained to National and State Officers concerned with quarantine. A final clause is noticed: "That there shall be no interference in any manner with any quarantine laws and regulations as they now exist or may hereafter be adopted under State laws." This provision was not in the original bill, as it was introduced, nor as it came from the Committee, but was adopted as a Senate Amendment, as a sort of compromise. A certain distinguished Senator from New York, antagonized the bill from its incipiency, and praised the New York quarantine: failing to destroy the bill, he was successful in crippling it in the interest of the accomplished health officer then at the head of the New York quarantine (Dr. Vanderpoel.)

But by whatever means adopted, it has since remained as a limitation on the effectiveness of the Act, and on a recent occasion in which the country was imperiled, this proviso was held to be operative, subsequent legislation notwithstanding.

It has before been stated, that no appropriation was made to carry into effect the Act of 1878. The epidemic of the summer of that year decimated the Mississippi Valley, the city of Memphis especially falling in the shadow of the scourge. Congress, roused to energy, passed an Act February 3, 1879, establishing a National Board of Health, and that body recommended the passage of an Act containing all the provisions of the Act of 1878, but substituting the National Board of Health as the executive authority, instead of the Supervising Surgeon General. This Act was limited to a period of four years, and was clearly experimental. It was approved June 2, 1879.

Before the expiration of the National Board of Health Act by limitation, Congress had grown dissatisfied with that body, and its business methods, and not only refused to appropriate money for its continuance, but made a new appropriation to be used as a contingent fund, in case of epidemic, to be expended by the President of the United States in his discretion in preventing the spread of the disease. While the President might use this fund in his discretion, he was nevertheless bound to use that discretion in accordance with the statutory limitations. He clearly could not use the agency of the National Board of Health, because that body has asked for the money in the

regular book of estimates, but Congress had placed the funds in his hands. An examination of the Debates in Congress shows that an amendment offered on the floor of the House to place the contingent appropriation at the disposal of the National Board of Health, had been overwhelmingly defeated. The alternative presented to President Arthur, was to use the existing machinery of the Marine Hospital Bureau, or to donate the money outright in case of need, to local boards of health. He chose to use the government agency, and the yellow fever breaking out on the Texas frontier, the sanitary campaign and the fund was managed by the writer.

The precedent thus set was followed by succeeding Presidents, and in all cases where this contingent fund has been employed, it was directly employed in aid of State and local boards of health, always bearing in mind the limitation of the proviso of the law of 1878. Repeated incursions of yellow fever at some of our Gulf ports, and the measures necessarily taken to prevent the introduction of small-pox from Canada in 1885, induced Congress to take measures for a permanent quarantine establishment, and the writer was asked by the Chairman of the Epidemic Diseases Committee of the Senate, to prepare an Act based on the extensive experience of the Bureau in the matter, and the writer framed the bill which became a law August 1, 1888, which established eight National quarantine stations, directed the procurement of sites, and appropriated a half million dollars for the purposes of the Act. This Act met with no obstruction in its passage, and became a law exactly as introduced, without amendment. It further operated to revive the Act of 1878 by distinct reference to two of its Sections, and imposed a penalty for the violations of its provisions. It provided for the punishment of trespassers on the quarantine stations, and authorized the prosecution by the nearest U. S. attorney. The Act took jurisdiction at once over the entire Pacific coast, by establishing quarantines at San Diego, San Francisco and Port Townsend. Quarantines were also established at Delaware Breakwater, Cape Charles, Sapelo Sound, and two on the Gulf coast. Three State quarantines were passed over—that of Louisiana at New Orleans, New York, and Boston, and at these ports the principal portion of the work is done on the Atlantic and Gulf seaboard. In the introduction of the bill, it was sought to avoid antagonism with the powerful local organizations, and by complete equipment and good management of the Government Quarantines to so demonstrate their superiority that none would finally question the wisdom of a general transfer.

The matter of land quarantine was up to this time untouched by legislative enactment. Its importance had been made fully apparent in the operations in Pensacola in 1883, and in Jacksonville in 1888.

The writer prepared a bill, which after some verbal changes, was transmitted by the Secretary of the Treasury (the Hon. C. S. Fairchild) to the Speaker of the House of Representatives, with a recommendation for its passage. It became a law substantially as transmitted March 27, 1890. Its title is: "An Act to prevent the introduction of contagious diseases from one State to another, and for the punishment of certain offenses." The text of the Act is, after the enacting clause: "That whenever it shall be made to appear to the satisfaction of the President, that Cholera, Yellow Fever, Small-pox or Plague exists in any State or Territory, or in the District of Columbia, and that there is danger of the spread of such disease into other States, Territories or the District of Columbia, he is hereby authorized to cause the Secretary of the Treasury to promulgate such rules and regulations as in his judgment may be necessary to prevent the spread of such disease from one State or Territory into another, or from any State or Territory into the District of Columbia, or from the District of Columbia into any State or Territory, and to employ such inspectors and other persons as may be necessary to execute such regulations to prevent the spread of such disease.

"The said rules and regulations shall be prepared by the Supervising Surgeon-General of the Marine-Hospital Service, under the direction of the Secretary of the Treasury.

"And any person who shall wilfully violate any rule and regulation so made and promulgated, shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not more than five hundred dollars, or imprisonment for not more than two years, or both, in the discretion of the court.

"SECTION 2. That any officer, or person, acting as an officer or agent of the United States at any quarantine station, or other person employed to aid in the preventing the spread of such disease, who shall wilfully violate any of the quarantine laws of the United States, or any of the rules and regulations made and promulgated by the Secretary of the Treasury as provided for in Section one of this Act, or any lawful order of his superior officer or officers, shall be deemed guilty of a misdemeanor, and upon conviction shall be punished by a fine of not more than three hundred dollars, or imprisonment for not more than one year, or both, in the discretion of the court.

"SECTION 3. That when any Common Carrier or Officer or Agent or Employé of any Common Carrier shall wilfully violate any of the quarantine laws of the United States, or the rules and regulations made and promulgated for in Section one of this Act, such common carrier, officer, agent or employé, shall be deemed guilty of a misdemeanor, and shall upon conviction be punished by a fine of not more than five hundred dollars or imprisonment for not more than two years, or both, in the discretion of the court."

It is curious that this Act of 1890 should have been completely ignored in the rather animated discussion of last summer, concerning the powers of the President in the matter of the New York quarantine and its deficiencies. It will be seen on examination that the Act is more than an inter-State quarantine Act; it provides for the enforcement of discipline at the quarantine stations and for the punishment of violations of *any* of the quarantine laws. When attention was called to this Act, the opinion was given verbally, that it was not operative, that it only contemplated inter-State quarantine, and could not be used to supplant a local quarantine, and that it could be used only at a State line.

My contention is that it does give just that authority.

There is now general agreement, I believe, that the original jurisdiction over quarantine rests with Congress; that matter having been settled by the Supreme Court in many cases.

Peete v. *Morgan*, 19 Wallace, 581;

Cannon v. *New Orleans*, 20 Wallace, 577;
State of Pennsylvania v. *Wheeling and Belmont Bridge Co.*, 18 Howard, 421;
Henderson v. *Mayor of New York*, 92 U. S., 259.
Chy Lung v. *Freeman, et al*, 92 U. S., 275;
Railroad Company v. *Husen*, 95 U. S., 465;
Hall v. *DeCuir*, 95 U. S., 485;
Telegraph Co. v. *Texas*, 105 U. S., 460;
Morgan v. *Louisiana*, 118 U. S., 455.

The uniform conclusion being that as the grant of power to regulate commerce is exclusive, "the States cannot exercise that power without the assent of Congress."

Leisy v. *Hardin*, 121 U. S., 119.

Let us inquire what is necessary to set the machinery of the Act of 1890 in operation. The necessary condition is set forth in the Act.

"Whenever it shall be made to appear to the satisfaction of the President that Cholera, Yellow Fever, Small-pox or Plague exists in any State or Territory, or in the District of Columbia, and there is danger of the spread of such disease into other States, Territories or the District of Columbia."

He must be satisfied that the disease exists and that there is danger of its spread. That is the sole condition, Having thus become satisfied, the President can then

"Cause the Secretary of the Treasury to promulgate such rules and regulations as in his judgment may be necessary to prevent the spread of the disease."

There is here no limitation, except that the next succeeding clause provides for the exercise of medical opinion in the framing of the regulations. The Secretary, after having the rules and regulations prepared, can clearly direct their execution. If these regulations should interfere with a State quarantine, that quarantine can no longer operate in conflict with the National regulation. It will be remembered that in the case of Morgan v. Louisiana, the principle was affirmed, that *in the absence of legislation* by Congress on this subject, the State legislation is valid. In the execution of the Act of 1890, there is an example of the enforcement of positive legislation on the subject. As the State quarantine law is only operative in the absence of congressional action, it is, therefore, invalid and need not be considered, and the National quarantine authorities are paramount. Any other construction of the Act of 1890 renders it of no effect and meaningless. It must be assumed that the legislative intent in the passage of this law, was that it should accomplish a certain purpose. That purpose was to prevent the spread of disease, and to make it clear that the power thus conferred upon the Executive Department should not be unnecessarily or uselessly exercised, the operation of the law was made contingent upon disease being present, and in danger of spreading.

The conditions last summer when the health officer of New York sent an impertinent letter to the President of the United States, (if we may believe the current reports in the daily press), were such as to have fully justified such action under the law of 1890, as would have placed the Government in full control of the New York quarantine. Cholera existed at the New York quarantine, and it was afterwards conveyed to the city of New York, necessarily from some defect in the administration of the New York quarantine. Asiatic cholera is known to be naturally foreign to the soil of New York City, and the only place from which it could have come was the quarantine. However, on the question being submitted it was asserted by a high authority, that action could only be taken at a State line. That our citizens might die on the Normannia, but the Government must not directly interfere. The last Section of the Act of 1878 was relied on to sustain that view. But in case of conflict the subsequent statute must govern, and the Act of 1890 was clearly intended to meet just such conditions.

I may remark, in passing, that we see much in the public prints about the President's "proclamation." The President never made a proclamation on the subject. He simply approved a Treasury department regulation made in pursuance of law. The duty of inquiring into the need of the issue of the regulation and the essence of the regulation itself, was one that naturally devolved on the Treasury Department, and in event of an injudicious regulation having been adopted, the person who gives the advice which led to its adoption is generally held to be responsible by the public, notwithstanding the maxim that "Who does it by another, does it himself."

The issue of a general quarantine regulation under the Act of 1878, necessarily caused adherence to the non-interference Section of that Act. Had the regulations been issued under the Act of 1890, the question of interference with State quarantine could not have been successfully raised. The true interpretation of the Act of 1890 must be found as in the interpretation of all other statutes, that it should be construed according to its plain and obvious import. It is not conceivable that the plain and obvious import of the Statute is to require that any operative measures under it must be taken at the line of an adjoining State; thus, for example, in case the cholera at New York had extended to Jersey City, the measures to prevent the spread of the disease would have to be taken at the Pennsylvania line. Such a course would render the Act absolutely useless, as no intelligent measures could be taken by the Government under such restrictions. There is no circumulocution or ambiguity about the Act; its intent was clear, namely, to prevent the extension or spread of certain contagious diseases. It authorized the adoption of regulations and the employment of the force necessary to carry them into effect. The prevention of the spread of a contagious disease from its existing location, or its suppression at that initial point, is in effect the prevention of its spread from one State to another.

Let us suppose that in Sleepy Hollow, on an island in the State of New York, cholera exists. It would surely be a compliance with the requirement to prevent its spread to the State of New Jersey, if the disease were stamped out or suppressed in Sleepy Hollow. It would simply render subsequent operations useless if we were forced to wait until the disease had spread throughout New York, or if the medical inspector armed with a copy of the Statute of 1890, should calmly proceed to the New Jersey line, and there await the coming of the pestilence. The King who placed his chair on the seashore and commanded the tide to recede from the English coast showed exemplary wisdom compared with such an inspector.

A forced construction of a statute, by which it is reduced to absurdity, is not usually tolerated.

But now that neither cholera, small-pox, yellow fever or plague exists in any part of the United

States, the Act of 1890 must remain in abeyance and new legislation must be had if Congress intends to establish uniform quarantine at all ports. In practice it has been found, that wherever the quarantine was a source of revenue, the States have usually desired to retain its control, and it is apparent that should Congress forbid the collection of the fees from shipping by any State or municipality, for quarantine purposes, and provide for their care by the Government, the motive for their retention would disappear. It is proposed at this coming session to introduce a bill that will provide that the President shall by proclamation designate at what ports and places quarantine shall be maintained by the Government, to forbid the collection of any fee for quarantine services—except for board of detained immigrants—and to provide for the extension of existing laws to such quarantines as may be so established. The quarantine inspections are maintained for the public good, their value is to the population in the interior not less than to that of the seaboard. Why should the state be burdened with the necessary expenses of protecting the interior?

The Government alone can protect the whole country. Of what avail is it, said Judge Hornblower in a recent paper, to have a well equipped quarantine at New York, while the one at Philadelphia is inefficient, and there is none at all at New Haven?

Besides the question of efficiency, there is the question of the duty of the Government. The Government is obliged to protect the interior, if protection be demanded. It has no moral right to delegate this plain duty to the State of New Jersey or the State of New York. Congress has not hesitated to pass laws concerning immigration, and establish a harbor patrol in New York to regulate the anchorage grounds in New York Bay. Why should it longer hesitate in the matter of quarantine?

The following is the proposed bill:

An Act to amend an Act entitled an Act to Perfect the Quarantine Service of the United States:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled:

That the second Section of the Act entitled an Act to Perfect the Quarantine Service of the United States, approved August 1st, 1888, be and the same is hereby amended so as to insert after the words "at the entrance to Puget Sound" the following:

The President of the United States is hereby authorized to designate from time to time such additional places on the coast of the United States for the establishment of quarantines as are in his judgment necessary to maintain a uniform quarantine servic in accordance with existing laws, and that the necessary expense of establishing such additional quarantine stations shall be borne from the contingent appropriation for preventing the spread of epidemic diseases, for the first year, after which such expenses shall be paid from the annual appropriation for the quarantine service; and be it further provided, that it shall hereafter be unlawful for any State or municipal authority to assess upon any vessel of any nationality whatever, any fee whatever for quarantine purposes.

BOOK REVIEWS.

PHYSICIAN'S VISITING LIST, 1893. P. Blakiston, Son & Co. Price $1.00.

This is the veteran of this useful class of publication. In its forty-second year there are the same characteristics of usefulness that have made this the favorite of the profession for nearly half a century.

DOMESTIC CORRESPONDENCE.

To the Editor of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION:

Sir:—Within the past few years the State of Texas has received notice from the profession as possessing a warm, salubrious climate, favorable to that class of patients who are suffering from diseases of the chest, and it may be proper to call attention to the peculiar advantages of Central Texas, or the mountain region. Its elevation is from 1,500 to 2,100 feet above the sea level, over 200 miles from the gulf, and below the thirty-first parallel, so it has a dry, warm, genial, bracing atmosphere. That it is good for nearly all diseases of the pulmonary organs is demonstrated by many a stout individual who came here diseased and is now well. The writer selected Central Texas as having the best advantages for a member of his family, and is well satisfied in his choice. No hectic, no expectoration, cessation of cough, a gain in body weight and strength, and exhilarated feelings are the result. The town has not been a "health resort," and its new comfortable houses and hotels are not impregnated with the "lurking germs of disease." Frost rarely comes, and a large proportion of the days in the year can be spent out of doors, fishing, hunting, or geologizing and prospecting for minerals. The soil is sandy and the vegetation is sparse, as in all granite formations, hence the water supply carries less organic or vegetable matter than the water in limestone countries, and a minimum amount of inorganic matter. The rainfall is about 24 inches per year, the wind blows gently every day, and evaporation is rapid, leaving little humidity in the soil or the air. "Northers" occasionally come, when patients must stay in doors, but they do not last long, and never bring snow. All except rainy days can be spent out of doors, and frequently these days have only showers, followed by sunshine. Seldom does a "tropical rain" occur.

Meteorological observations for the past eleven months of 1892 give the following monthly mean temperature and number of rainy days:

	Deg. Fahr.	Rainy Days.
January	49	5
February	53	4
March	60	6
April	73	3
May	75	6
June	90	6
July	94	1
August	88	6
September	84	4
October	76	7
November	68	5

The records were taken at 6 A.M., noon, and 6 P.M., and show an average temperature of 72 degrees and 53 rainy days. Respectfully, C. F. DARNALL, M.D.

Llano, Tex., December 3, 1892.

THE USE OF SALICYLATE OF SODA FOR SPRAINS.—M. Labeeb, without claiming any priority, spoke briefly at a meeting of the Society de Therapeutique of the markedly satisfactory result which he had obtained by the use of one drachm of this remedy in twenty-four hours for a tibio-tarsal sprain. The following morning there was no pain, and in four days there was complete cure. His results were equally good in several cases, whether or not the rheumatic or arthritic diathesis was present.—*La Semaine Medicale.*

SYNTHETIC CHEMISTRY seems to have no limits. The latest product which has been successfully made from coal products is camphor. It promises to be cheap and the specimens submitted respond to the most crucial tests.—*St. Louis Med. and Surg. Reporter.*

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MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Richard J. Dunglison, Lock Box 1274, Philadelphia, Pa., sending him a certificate or statement that he is in good standing in his own Society, signed by the President and Secretary of said Society, with five dollars for annual dues and subscription for THE JOURNAL. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership. On receipt of the above amount the weekly JOURNAL of the Association will be forwarded regularly.

SATURDAY, DECEMBER 10, 1892.

PSYCHO-THERAPEUTICS.

This name is used to describe all therapeutics which cures by the intervention of the psychical functions of the sufferer. The first thorough study of this topic was by DR. HAACK TUKE, in which he showed the dominating influence of the mind over the body, and the possibility of curing disease by this power alone. Late authors have divided these remedies into five divisions. The first, *psycho-therapy* is given to all measures which oppose disease by psychical means, or the intervention of psychical functions. The second is *suggestion*, which is the impulse given by one mind to another. This is one of the principle processes by which changes are induced in the mind and organism of the sufferer. The third is called *therapeutic hypnosis*, which signifies normal sleep, induced by suggestion. The fourth means is *hypnotism*, which requires certain abnormal conditions, which when spontaneous are pathological, and when artificial are merely experimental and of little interest in therapeutics. The last has come into great prominence through the studies of CHARCOT, LEIBEAULT and BERNHEIM. Although some wonderful facts have been apparently demonstrated there is a degree of abnormality, with confusion of symptoms and conditions that suggests the empiric stage of the study. Hence, it appears that the efforts to reach the truth along this line of approach are not very promising. The power of suggestion as a remedy where through disease or constitutional conditions the degree of receptivity is strong, is almost marvelous in many cases. This very often extends to hypnotic sleep that is normal. All physicians in a vague, uncertain way, avail themselves of these psychic means, but rarely consider them of scientific interest and worthy of study. DR. VAN EEDEN, of Holland, has in a special study of these measures, declared that the highest attainment of therapeutic art must be sought for in the use of psychic measures. The physician of to-day depends almost entirely upon mechanical, chemical, and electrical remedies, and largely ignores the power of psychic functions. The most advanced studies prove that nearly all the temporary, transient and permanent cures which follow from the use of material remedies, depend more largely on the psychic functions and forces, which are substantially unknown.

The "vis medicatrix naturæ," so frequently mentioned as indispensible is simply this psychic power to withstand hurtful influences, to resist degeneration, and repair injuries. DR. EEDEN urges that hypnotism, clairvoyance, mind reading, and the similar empiric means and measures, used by quacks, be rescued, studied, and made to do service along the line of rational remedies. He considers that psychic therapeutics opens a far wider field for the treatment of disease than the study of bacteriology, and along these two lines the most startling advances of medicine may be expected. All practical physicians recognize the operation of higher and unknown forces in both health and disease. Forces which depress or elate organic functions and antagonize surroundings and therapeutic measures, that can not be foreseen or predicated. Modern psychology shows conclusively that living cells have other than purely chemical and physical qualities. This unknown force is called psychic, and occupies a very important part in the activity of the cell. The study of this has been neglected, and yet every advance of science, both theoretically and clinically, is bringing out innumerable facts, relating to this force, that are not understood or utilized. Psychic therapeutics has begun to be studied along the line of hypnotism. A vast number of people entertain the most extravagant expectations of the value of the mind cure, and christian healing. The power of a suggestive idea is illustrated in every part of the country, no matter what the idea may be. In every consulting room, and sick chamber physicians recognize and use this psychal-therapy, and yet the subject is practically unknown, and without scientific study. DR. HAACK TUKE'S work of the influence on the mind on the body, is a most suggestive text-book, and should be read and studied by every physician. Hypnotism can not be ignored, it is a power in therapeutics, although its practical application may be vague and uncertain. Suggestion and all the varied names used to express the psychical force, which is exerted by one over the other, are all dim headlands of an unknown country. A country that belongs especially to the physician and the scientist, and can never be discovered except along the line of exact study and observation.

PROFESSOR VON PETTENKOFER ON CHOLERA.

The *British Medical Journal* for November 19 publishes advance proofs from the *Münchener medicinische Wochenschrift* of an address on cholera by PROFESSOR MAX VON PETTENKOFER.

He recalled that many years ago he said that the etiology of cholera was an equation with three unknown quantities, namely: x, a specific germ disseminated by human intercourse; y, a factor dependent on place and time, that he called "local disposition;" and z, the individual predisposition. Places as well as persons often enjoyed immunity, and places which suffered at one time often remained free at another, even when the two factors x and z were present. The determination of y was not as easy as that of the others; but the nature and degree of moisture of the soil had an important influence on this factor.

He thought that the simplicity of KOCH'S theory commended it to those who only looked at the individual patient, and not at the course of a long series of epidemics. The constant occurrence of the comma bacillus in the excreta of cholera patients indicated that the microbe had something to do with the process, though it was still open to question whether it alone was the cause of the disease.

To test this latter point the PROFESSOR obtained some bacilli from Hamburg from PROFESSOR GAFFKY. A bouillon culture was prepared, and a plate culture from this showed that one cubic centimetre of a thousandth dilution contained numberless comma bacilli, far more than could possibly be conveyed by a man's hand to his mouth. Notwithstanding his advanced age (74), V. PETTENKOFER took a light breakfast and two and a quarter hours later, when, according to VON VOIT'S calculations, there could not be so much as 100 cubic centimetres of gastric juice with 0.3 per cent. of hydrochloric acid in his stomach, he took 100 cubic centimetres of a one per cent. solution of bicarbonate of soda; this neutralized the small amount of acid in his stomach and produced a good medium for the development of the cholera spirilli contained in a cubic centimetre of the fresh bouillon culture that he swallowed at a draught. Two days later, severe colicky pains and moderate diarrhœa came on that persisted for six days. During that time the urine was normal, he took no medicine whatever, ate his customary food with a good appetite, pursued his usual avocations without any interruption, and felt perfectly well except for the symptoms mentioned. The stools were examined bacteriologically by DRS. PFEIFFER and EISENLOHR during the duration of the diarrhœa, and were found to be swarming with comma bacilli, yet there were no symptoms of Asiatic cholera. He thought, however, that his experiment might have had a fatal result if it had been carried out in Hamburg, where not only x but y was present in full force.

PROFESSOR EMMERICH made an exactly similar experiment on himself, with much the same result, except that the colic and diarrhœa were much more severe; otherwise he felt perfectly well.

VON. PETTENKOFER considers that these experiments show conclusively that the comma bacillus during its sojourn in the intestines does not produce the specific poison which causes Asiatic cholera, PROFESSOR BAUER and DR. VON ZIEMSSEN, both of whom have had considerable experience with cholera, did not think that either V. PETTENKOFER or EMMERICH had even slight attacks of Asiatic cholera. VON PETTENKOFER, while not denying that the comma bacillus has some etiological importance, says he cannot believe it is the x that, without the assistance of y, can cause epidemics of cholera; practically he believes that y, that is the local physical and sanitary conditions, must be attended to in order to make a place cholera-proof.

While these experiments of V. PETTENKOFER and EMMERICH have eliminated the sources of error that made those of BOCHEFONTAINE and KLEIN fallacious, they have demonstrated what V. PETTENKOFER originally denied, that the evacuations of a cholera patient contained the virus at all, either potentially or actually. For in this instance comma bacilli were obtained from the evacuations of a cholera patient, and cultures made from these produced in healthy persons intestinal disturbances with the presence of these bacilli in the diarrhœal stools. And while V. PETTENKOFER has made good his challenge of eight years ago to swallow a quantity of comma bacilli, it seems to us that his freedom from other choleraic symptoms was due to the factor z, individual predisposition, rather than to y. In other words we do not agree with the learned PROFESSOR that if the same experiment had been performed upon him in Hamburg there might have been a fatal result. In epidemics of cholera only a certain per cent. of the population of a place is attacked, notwithstanding the fact that the "local disposition" is the same for all, though there is always an increase in the number of cases of diarrhœa, so the factor of individual predisposition must be invoked to explain the immunity of portions of the population of a cholera infected city.

And while the ingestion of the cultivations of cholera bacilli in these two cases has proved to be comparatively harmless, it has not been demonstrated that a similar experiment with a number of men in all sorts and conditions of life would not cause a certain number of fatal cases of cholera.

SYMPHYSIOTOMY.—The reference to the case of Dr. Barton Cooke Hirst, on page 675 of our last issue, should have been credited to *The Medical News* instead of *The Maryland Medical Journal*.

THE INSURANCE SPONGE.

The sponge is an animal. That question is settled. The vegetarians have ceased to claim it. Like the vanquished party in the recent presidential contest, they surrendered reluctantly, but they surrendered.

"In its simplest form"—so the naturalists inform us—"the sponge is homologically a single animal with the internal structure and function of a colonial organization."

There are many varieties of sponge. The *spongia equina* is the horse sponge of the bath room. The *spongia dura* is the Hardhead found in America. The cup sponge and glove sponge are fine species used in surgery.

All these are marine varieties. "None of them seem to be truly parasitic—that is, capable of living upon the substance of other animals."

But there are land sponges. These also are single animals with the structure and function of organized colonies. Unlike the sea sponges, these land lubbers are truly and with emphasis parasitic—that is, they actually do live upon the substance, the juices, the circulating medium of other animals.

The tramp is a sponge—a combination *spongia dura* and *spongia equina*. He has facial petrifaction united with the peripatetic propensity of the walking delegate.

A sponge possesses the property of enormous absorption and retention; but of its own volition it disburses nothing. Firm compression is necessary to secure disgorgement. *Spongia cerebriformis* is a common enough species, but *spongia corda*—the sponge with a heart—is an exceedingly rare, but not inconceivable variety.

This, by natural gradation, brings us to the subject under consideration.

A Life Insurance Company is a sponge. It belongs to the family of *octopodo millipoda*. It has a head-centre; grasping arms, which extend to immense distances; agents as suckers; and medicine men as tentacles or feelers. Through its agents its sucks into its colonial meshes such an enormous surplus of nutriment that it permits its chief sucker to retain fifty per cent. of the premium blood drawn from the veins of each newly captured victim; while its corpulent head-centre appropriates an amount of this same vital fluid which if transmuted into coin would equal from ten thousand to seventy thousand ducats annually.

The tentacles decide as to the sanitary condition of the victims. They receive scanty pabulum for their services which are, or should be, of greatest value.

The judgment of other medical men (especially those of recognized prominence) as to the ability and fitness of the tentacles is constantly sought by the head-centre. The opinion desired may be of immense importance. It may insure success or ward off disaster. But the insurance octopus sponges the opinion. He disgorges no ducats; he emits not even a worthless thank.

He propounds in a circular a series of questions as to the age of the tentacle whom he purposes to employ; when and where he was educated; his qualifications as a diagnostician; the acuteness of his senses, especially his hearing; the amount of his business; his shrewdness; his mental and moral integrity; his ability to resist the allurements of the willing victim and the anxious sucker; his social and professional standing; and then he craftily pretends that the valuable time spent in answering fully these and many more searching questions is for the sole benefit of the proposed tentacle; while at every moment he knows that the pretense is a false one and employed only to excuse sponging the wished-for information from the meek and complaisant physician.

More than this. He is guilty of the contemptible meanness of promising that if the friendly tentacle shall be maligned and betrayed, the gratuitous betrayal will be guarded sacredly as "confidential."

In the good time coming—slowly coming—some insurance millipod may, by evolution or compulsion, emerge from his spongy condition. Then he will send with his circular questions not only the generous two cent postage stamp, but a suitable fee for careful answers. Then he will frankly acknowledge the truth that the information sought is for the protection of the organization. Then he will be independent enough and shrewd enough to proclaim that (whatever other Associations may sneakingly do) his company is able and willing to pay—and actually does pay—for all services rendered.

When this salutary transformation shall have been effected, the busy doctor will no longer throw, with resentful disgust, the insurance circulars into the waste basket; but he will regard himself as the compensated agent of a cordate and honorable Association which deserves respect and success and whose interests he will gladly seek to promote.

TWO MEDICAL COLLEGE ASSOCIATIONS.

The bulk of the last issue of THE JOURNAL consisted of the most excellent papers presented at the last meeting of the Association of American Medical Colleges, together with the Constitution and By-laws of the above Association and the recently formed association sailing under the title of the Association of Southern Medical Colleges. It is a conceded fact that the maintenance of an association representative of the colleges of this country will tend to subserve their best interests. This has been proved by the history of like associations representative of all branches of the professions and various educational bodies. It remained for the representatives of the

leading colleges of medicine to arrive at this conclusion in a period of the last few years only. Consequently there was organized at Nashville, Tenn., in 1889, the present National body with representatives from fifty-four colleges, representing all sections of the country. This Association now contains a membership of seventy colleges. Since the last meeting in Detroit the few representative colleges not then members have signified their intention of being represented at the forthcoming meeting. The organization of the new college association is to be deplored from any view that may be taken. There is absolutely no excuse for its existence. It was organized by the representatives of a few colleges located in a sequestered portion of the Southern States. We are of the opinion that the large number of Southern schools at present members of the National Association will retain their membership. The colleges represented in the new association are not recognized as high grade schools. They are not willing to maintain the requirements demanded of the National body notwithstanding the requirements of the latter Association are not as high as they should justly be. We invite the attention of the readers of THE JOURNAL resident in the immediate vicinity of the colleges belonging to the new association, to a perusal of the requirements for entrance examination in these schools. It will readily be inferred that the people of the South are not desirous of a very high grade of intellect in their medical men. We are of the opinion that the quickest and most certain method of settling the question of medical education in this country is by efficient medical legislation. The work of a few State Boards fully confirms us in this opinion. The tabulated statistics of the result of the examination of candidates to practice in five different States including 1,950 practitioners, is fully confirmatory of our opinion. We trust the alumni and friends of the colleges belonging to the new association will secure a copy of DR. MILLARD'S paper read at the last meeting of the American Academy of Medicine, and see for themselves just what character of work is being done by these schools. In view of the decided action of the American Medical Asscciation at its last meeting we feel it our duty to direct attention to this question. We are of the opinion that the profession as a mass have tolerated the low grade medical college about as long as they will. In the future a more distinct line of demarkation will be drawn between the high and low grade medical college. The statistics of the various State Boards will classify them where they belong and their *clientele* will consist of the scavenger element.

THE court report of the celebrated Alice Mitchell case may be obtained by addressing Dr. F. L. Sim, Memphis, inclosing ten cents in postage stamps.

THE PROPOSITION TO REVISE THE CODE OF ETHICS.—*Dear Sir:*—Members of the American Medical Association having been invited to express their views concerning the proposition to revise the Code of Ethics, I have the honor to state the reasons why, together with many associates, I do not think it wise or expedient to make any change in this admirable system of morals.

1. It would not be wise to alter the code in any particular, because its teachings are salutary, its phraseology is lucid, and its aims are noble; qualities which surely enhance its value as a criterion of medical morals to young physicians entering upon their professional duties.

2. It would not be wise to revise the code; because it does not contain any superfluous statements and because it is the best guide to all physicans in their various relations.

3. It would not be wise to change, even in the slightest degree, the verbiage of the code; because the words are simple, the language is pure and good, and the presentation of the subject is clear and logical.

4. It would not be wise to modify the code; because all its provisions are distinctly stated, and it does not contain any expressions that can be justly condemned or that require modification.

5. It would not be wise to make additions to the code; because it embodies all that is needed in any system of medical morals.

6. It would not be expedient to further consider the revision proposition; because a revision of the code would be likely to cause changes which would be very objectionable to great numbers of members, and which would doubtless excite much discontent.

Continued agitation of this question could serve no good or useful purpose and would occupy precious time, which otherwise might be profitably employed, as in the study and discussion of scientific topics.

I hope that the committee to which the revision proposition has been referred will report against any kind of revision, and that the Association will refuse to entertain further propositions tending to modify the code in any respect, particularly since its spirit has been unequivocally indicated by the most ample and liberal explanatory declarations.

A CONSERVATIVE MEMBER.

MISCELLANY.

OFFICIAL LIST OF CHANGES in the Stations and Duties of Officers Serving in the Medical Department, U. S. Army, from November 26, 1892, to December 2, 1892.

Capt. Henry P. Birmingham, Asst. Surgeon U. S. A., is relieved from duty at Boise Bks., Idaho, to take effect upon the expiration of his present leave of absence, and will then report in person to the commanding officer, Ft. Grant, Ariz., for duty at that post.

By direction of the Secretary of War, Par. 3, S. O. 232, October 3, 1892, from this office, directing Major Robert M. O'Reilly, Surgeon U. S. A., to report for duty as attending surgeon in this city on December 15, 1892, is amended to direct him to so report on January 15, 1893.

Capt. Eugene L. Swift, Asst. Surgeon U. S. A., ordinary leave of absence granted is changed to leave of absence on surgeon's certificate of disability, and extended as such two months.

First Lieut. Samuel R. Dunlop, Asst. Surgeon U. S. A., extension of leave of absence granted is further extended one month.

Capt. Junius L. Powell, Asst. Surgeon U. S. A., so much of Par. 2, S. O. 232, A. G. O., Oct. 3, 1892, as directs him to repair to Ft. Monroe, Va., for duty at that post, is revoked, and he will upon the final abandonment of Ft. Randall, S. Dak., report in person to the commanding officer, Jackson Bks., La., for duty at that post, relieving Capt. Wm. C. Borden, Asst. Surgeon. Capt. Borden, on being relieved by Capt. Powell, will report in person to the commanding officer, Ft. Adams, R. I., for duty at that post.

Major William R. Gardner, Surgeon U. S. A., is relieved from further duty at Angel Island, Cal., and will report in person to the commanding officer, Ft. Keogh, Mont., for duty at that post.